RCRA FACILITY ASSESSMENT REPORT
NALCO CHEMICAL COMPANY
SUGARLAND, TEXAS
(TXD008084618)

Prepared for

U.S. Environmental Protection Agency
Region 6
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Prepared by

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In Response to

EPA Contract No. 68-W9-0041
Work Assignment No. R2657
Project No. 01

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DISCLAIMER

This report was prepared for the U.S. Environmental Protection Agency (EPA), Region 6, by PRC Environmental Management, Inc. in fulfillment of Contract No. 68-W9-0041, Work Assignment No. R2657, Project No. 01. The opinions, findings, and conclusions expressed herein are those of the contractor and are not necessarily those of EPA or other cooperating agencies. Mention of company or product names is not to be considered as an endorsement by EPA.

This document is intended to assist EPA and state personnel in developing requirements for a Resource Conservation and Recovery Act (RCRA)-regulated facility owner or operator to conduct a RCRA facility investigation (RFI) pursuant to Title 40 of the Code of Federal Regulations (CFR), Section 264. EPA will not necessarily limit the RFI or other requirements to those that correspond with the recommendations set forth herein. EPA and state personnel must exercise their technical judgment in using the RCRA facility assessment report, as well as other relevant information, in determining what RFI or other requirements to include in a permit or order.

EXECUTIVE SUMMARY

PRC Environmental Management, Inc. (PRC) conducted a Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) of the Nalco Chemical Company (Nalco) facility in Sugarland, Texas (Nalco Sugarland). The RFA included a preliminary document review (PR), followed by a visual site inspection (VSI). The VSI was conducted on November 23 and 24, 1992, to (1) determine Nalco Sugarland's current operating status, (2) identify existing solid waste management units (SWMU), (3) assess the regulatory compliance of those units, (4) assess potential releases to the environment from those units, and (5) identify areas of concern (AOC).

Nalco Sugarland blends and produces specialty chemicals for the oil field servicing, boiler maintenance, and wastewater treatment industries. Nalco Sugarland receives about 200 different raw materials and produces about 600 different finished products. Nalco Sugarland began operations in 1933 and is active.

From 1933 to 1977, Nalco deposited waste at Char Lake, which is about 3/4 mile south of Nalco Sugarland. Char Lake is owned by Sugarland Properties, Inc. In 1983, Char Lake was capped with a compacted clay cover.

Nalco Sugarland operates under Permit No. HW-50120-001, issued by the Texas Water Commission on February 10, 1987, and last revised on July 1, 1989. Nalco's Part B permit, as last amended on July 1, 1989, allows the handling of (1) hazardous wastes identified by EPA waste codes F003, F005, U008 and (2) toxicity characteristic wastes identified by EPA waste codes D001, D002, D003, D004, D005, D007, D008, D009, and D018. The Part B permit authorizes Nalco Sugarland to (1) prepare waste for combustion in an on-site incinerator, (2) combust waste for energy recovery, and (3) store waste in containers before shipment to an off-site disposal facility.

During the PR and VSI, 26 SWMUs were identified, 18 are active, and 8 are inactive. The active units include (1) an incinerator waste transfer area, (2) incinerator feed tanks, (3) an incinerator, (4) a transfer area, (5) Tank 703, (6) Tank 701, (7) a research container storage area, (8) a research laboratory compactor, (9) a bulk storage compactor, (10) a hazardous waste drum storage area, (11) a nonhazardous waste storage area, (12) a salt bin storage area, (13) a raw material

bag compactor, (14) a parts-cleaner unit, (15) a waste oil tank, (16) tote tank cleaning tanks, (17) the new wastewater treatment system, and (18) a storm water basin. The inactive SWMUs are (1) tank S-700, (2) a laboratory waste storage tank area, (3) a chromate waste tank, (4) a former wastewater treatment sump, (5) a 500-gallon sump, (6) a former wastewater treatment system, (7) a waste pile, and (8) a former burn pit.

Three AOCs were identified during the VSI. The AOCs include (1) an oxyalkylation area, (2) an alkylate tank farm area, and (3) an upright unloading area.

PRC recommends a RCRA facility investigation of Nalco Sugarland because there is (1) suspected soil and ground-water contamination at the facility and (2) a lack of information regarding the facility's use before 1980, including status, waste type, waste management, environmental releases, and remedial actions taken.

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC) received Work Assignment No. R2657 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0041. This work assignment required PRC to perform a Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) of the Nalco Chemical Company (Nalco) facility in Sugarland, Texas (Nalco Sugarland).

1.1 PURPOSE OF THE RCRA FACILITY ASSESSMENT

The purpose of the RFA is to identify environmental releases or potential releases from solid waste management units (SWMU) that may require corrective action. The RFA is the first step in implementing the corrective action provisions of the 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA. Specifically, Sections 3004(u), 3004(v), and 3008(h) grant EPA the authority to initiate corrective action for releases of hazardous wastes and constituents from SWMUs at RCRA-regulated facilities. An RFA generally consists of three steps: (1) preliminary review (PR), (2) visual site inspection (VSI), and (3) sampling visit. A sampling visit is conducted only when available information is insufficient to support a recommendation for a RCRA facility investigation (RFI).

The PR and VSI are intended to accomplish the following tasks:

- Evaluate existing information on hazardous waste releases or potential releases at the facility.
- Identify all SWMUs, and evaluate them for releases of hazardous waste.
- Screen from further investigation those SWMUs that do not pose a threat to human health or the environment.
- Determine the need for further action, such as an RFI.

1.2 PROCEDURES

The RFA was conducted in accordance with procedures outlined in EPA's RFA Guidance document (U.S. EPA, 1986). PRC conducted the PR at the EPA Region 6 office in Dallas, Texas, on October 9, 1992, and at the Texas Water Commission (TWC) office in Austin, Texas on October 16, 1992.

PRC conducted the VSI on November 23 and 24, 1992, at Nalco Sugarland. The VSI provided the additional information needed to make the recommendations presented in this report. The following personnel were present during the VSI:

- Mr. Don Comer - Nalco
- Mr. Michael Pisarcik - Nalco
- Mr. James Cole - PRC
- Mr. Bill Clemons - PRC

An initial meeting was held at Nalco Sugarland between PRC and Nalco representatives. PRC representatives explained the purpose of the VSI and discussed the RFA process. The group discussed questions identified during the PR and submitted to Nalco by EPA in a letter dated October 27, 1992.

The remainder of the VSI consisted of visits to each of the potential SWMUs and areas of concern (AOC) identified during the PR and a general facility tour. The VSI concluded with a meeting to answer any remaining questions.

1.3 REPORT

This report summarizes the information obtained during the PR and VSI and evaluates the information in terms of the RFA objectives. The facility is described in Section 2.0, its environmental setting is discussed in Section 3.0, the SWMUs are identified in Section 4.0, the AOCs are identified in Section 5, potential human and environmental targets are described in Section 6.0,

and conclusions and recommendations are presented in Section 7.0. Facility photographs taken during the VSI are included in the appendix.

2.0 FACILITY DESCRIPTION

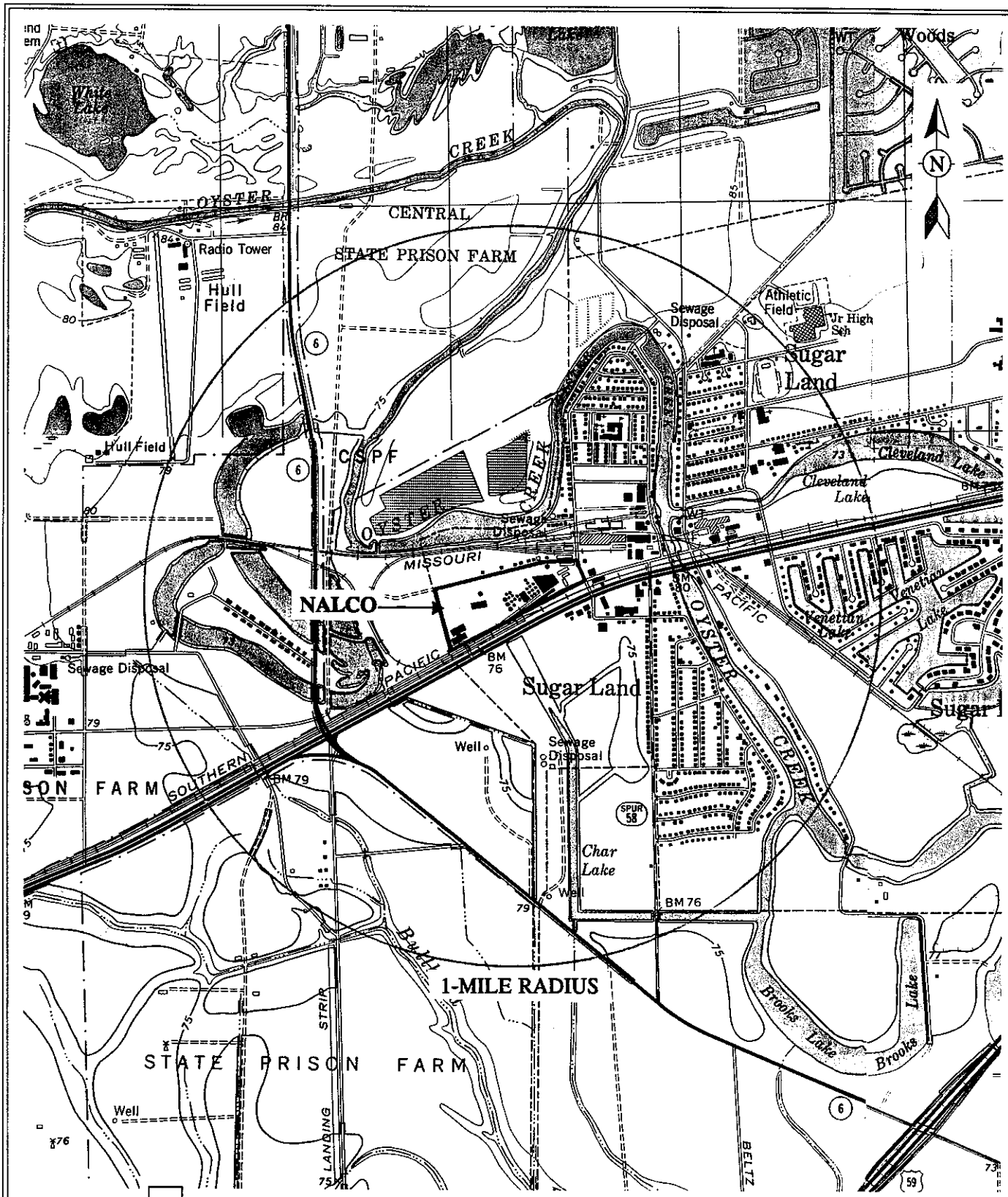
This section presents background information on the facility location, facility operations and waste management practices, and regulatory status.

2.1 FACILITY LOCATION

Nalco Sugarland is located on about 30 acres at 7701 U.S. Highway 90-A, Sugarland, Fort Bend County, Texas (Figure 1), northwest of the intersection of U.S. Highway 90-A and Ulrich Street. A 6-foot-high fence topped with barbed wire surrounds Nalco and limits access. Nalco Sugarland is situated in an industrial and commercial area about 1/2 mile from agricultural and residential property.

A map of Nalco Sugarland is presented in Figure 2. The SWMU locations are presented in Figure 3. The following data are included as additional information:

Location:	7701 U.S. Highway 90-A Sugarland, TX 77487
Geographical Coordinates:	29°37'05"N Latitude 95°38'28"W Longitude
Contact:	Mr. Don Comer Environmental Health and Safety Superintendent
Telephone:	(713) 491-4500
EPA Identification Number:	TXD 008084618
TWC Permit Number:	HW-50120-001
TWC Notice of Registration Number:	30601

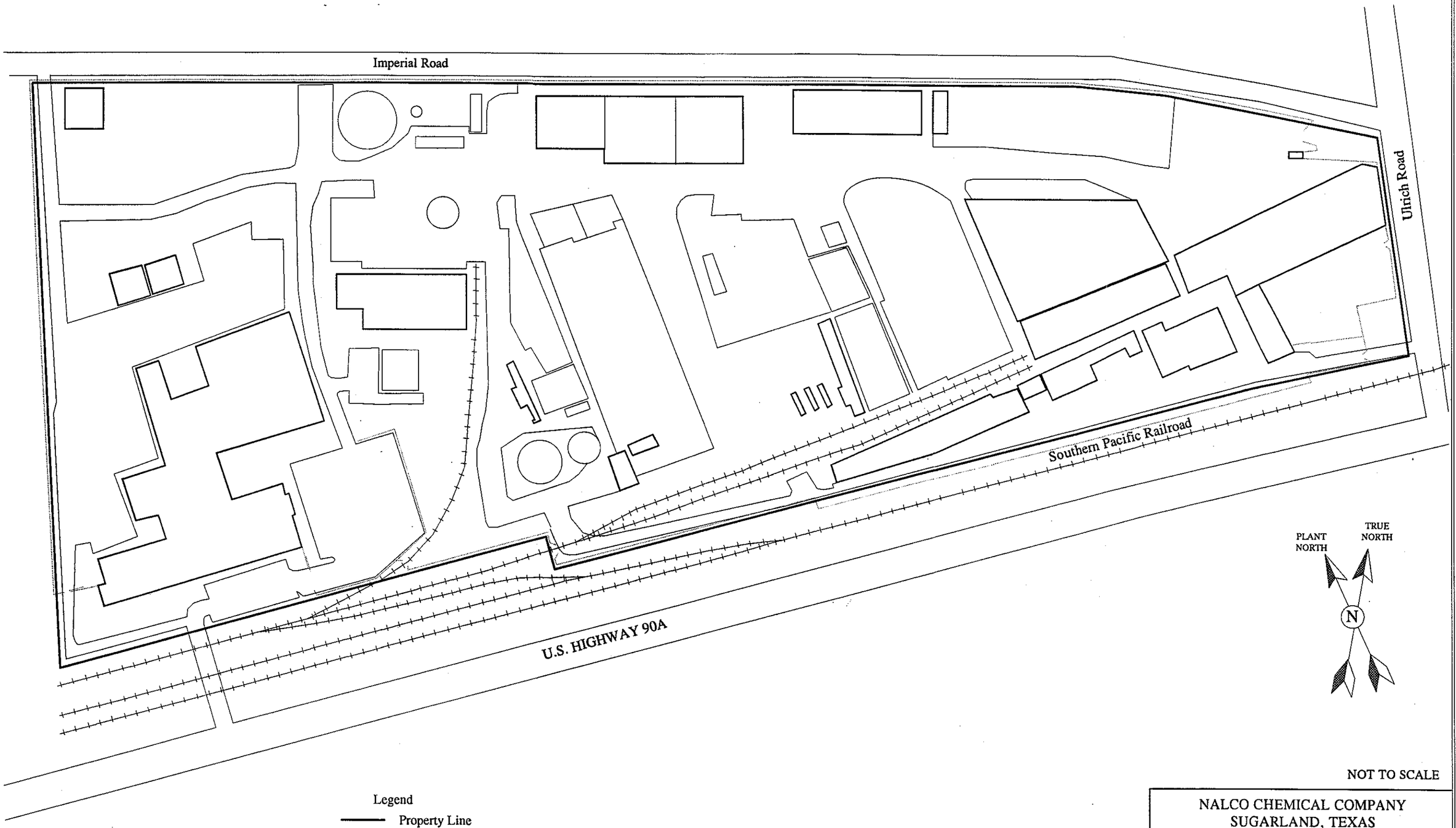


NALCO CHEMICAL COMPANY
SUGARLAND, TEXAS

FIGURE 1
FACILITY LOCATION MAP

SOURCE: USGS, SUGARLAND, CLODINE, ALIEF, AND MISSOURI CITY QUADRANGLES, 1980

PRC Environmental Management, Inc.



NOT TO SCALE

Legend

Property Line

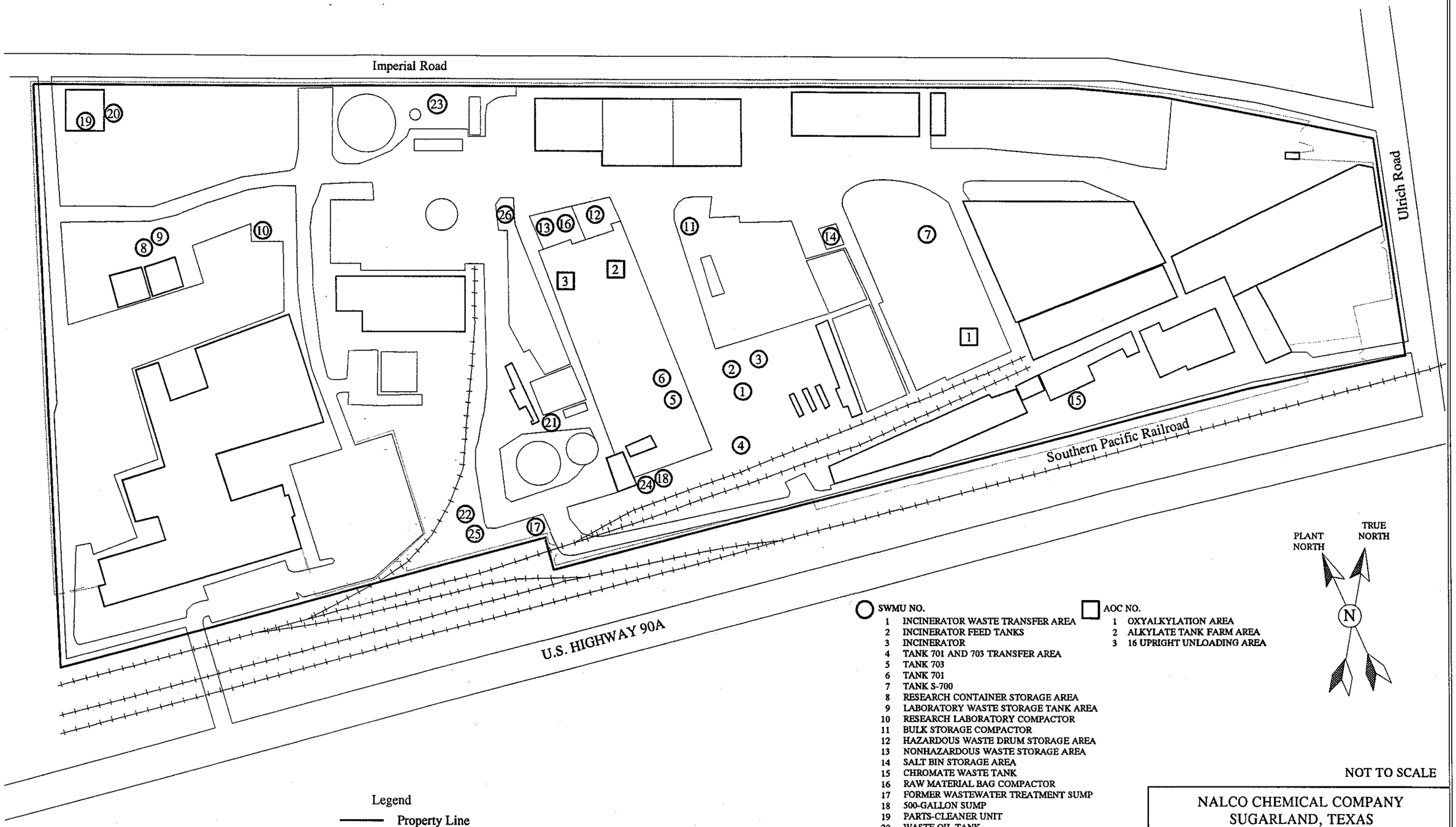
Fence

SOURCE: NALCO, 1992

NALCO CHEMICAL COMPANY
SUGARLAND, TEXAS

FIGURE 2
FACILITY LAYOUT MAP

PRC Environmental Management, Inc.



SWMU NO.

1 INCINERATOR WASTE TRANSFER AREA
2 INCINERATOR FEED TANKS
3 INCINERATOR
4 TANK 701 AND 703 TRANSFER AREA
5 TANK 703
6 TANK 701
7 TANK S-700
8 RESEARCH CONTAINER STORAGE AREA
9 LABORATORY WASTE STORAGE TANK AREA
10 RESEARCH LABORATORY COMPACTOR
11 BULK STORAGE COMPACTOR
12 HAZARDOUS WASTE DRUM STORAGE AREA
13 NONHAZARDOUS WASTE STORAGE AREA
14 SALT BIN STORAGE AREA
15 CHROMATE WASTE TANK
16 RAW MATERIAL BAG COMPACTOR
17 FORMER WASTEWATER TREATMENT SUMP
18 500-GALLON SUMP
19 PARTS-CLEANER UNIT
20 WASTE OIL TANK
21 TOTE TANK CLEANING TANKS
22 FORMER WASTEWATER TREATMENT SYSTEM
23 NEW WASTEWATER TREATMENT SYSTEM
24 STORM WATER BASIN
25 WASTE PILE
26 FORMER BURN PIT

AOC NO.

1 OXYALKYLATION AREA
2 ALKYLATE TANK FARM AREA
3 16 UPRIGHT UNLOADING AREA

NOT TO SCALE

SOURCE: NALCO, 1992

NALCO CHEMICAL COMPANY
SUGARLAND, TEXAS

FIGURE 3
SWMU AND AOC LOCATION MAP

PRC Environmental Management, Inc.

2.2 FACILITY OPERATIONS AND WASTE MANAGEMENT PRACTICES

Nalco Sugarland has been operating since 1933, producing specialty chemicals for the oil field servicing, boiler maintenance, and wastewater treatment industries. Nalco Sugarland receives about 200 different raw materials and produces about 600 finished products. Raw materials arrive in rail tank cars, truck tank trailers, drums, tote tanks, and bags, and finished products leave in drums and tote tanks.

From 1933 to 1977, Nalco deposited waste at Char Lake, about 3/4 mile south of Nalco Sugarland. Char Lake is owned by Sugarland Properties, Inc. In 1983, Char Lake was capped with a compacted clay cover.

Nalco is permitted by TWC Permit No. HW-50120-001 to (1) prepare waste for combustion in an on-site incinerator, (2) combust waste for energy recovery, and (3) store waste in containers before shipment to an off-site permitted disposal facility. Nalco is permitted to manage manufacturing waste generated at the Nalco Sugarland facility and other facilities owned and operated by Nalco.

Nalco Sugarland receives overhead process condensate waste from the Nalco facility in Grayville, Louisiana. This waste, which contains allyl chloride, hexadiene, and chlorinated propane, is received in tanker trucks. Nalco Sugarland pumps this waste directly into the incinerator feed tanks.

Nalco Sugarland uses batch operations to produce most of its products. When a batch is complete, the reaction tank, mixers, and pipes are cleaned and flushed with solvents and water. This cleaning process generates waste liquids, which are collected in tote tanks. The tote tanks are used to transport the waste to the incinerator transfer area, to one of the container storage areas, or to one of the waste storage tanks before the waste is shipped off site.

Nalco Sugarland uses one continuous operation, which is a water-based reaction of ethylene dichloride, ammonia, and sodium hydroxide (caustic). This reaction produces a saturated solution of sodium and ammonium chloride. Excess salt is centrifuged from the liquid. Small amounts of water,

polyethylene amine, and vinyl chloride remain on the salts. The salt is discharged into roll-off boxes for accumulation before disposal off site.

Nalco Sugarland uses 450-gallon stainless steel tote tanks to collect, store, and transport hazardous waste, nonhazardous waste, finished products, and some raw materials. The tote tanks are cleaned between uses. This cleaning takes place at the tote tank wash area where water is used to clean the tote tanks. The tote tank wash water is collected in two 10,000 fiberglass reinforced plastic (FRP) tanks. The clean tote tank is then reused.

Nalco Sugarland performs basic maintenance on its tractor trucks and other vehicles in the truck maintenance building. Quality control and research activities are also conducted at Nalco Sugarland.

2.3 REGULATORY STATUS

Nalco submitted a Notification of Hazardous Waste Activity to EPA on August 18, 1980, and was assigned identification number TXD008084618. On November 18, 1980, Nalco submitted a Part A permit application to treat, store, and dispose of hazardous waste at Nalco Sugarland. Following a request by the TWC, Nalco submitted significant revisions to this application on February 22, 1985. The revisions included the deletion of salt bin areas, the plant effluent averaging and wastewater pH adjustment system, and two tanks (sludge and wastewater). In addition, two incinerator feed tanks were added, and several wastes were deleted from the permit application.

The Nalco facility was inspected by representatives of the TWC on July 18, 1985, and June 24, 1986. The following areas of noncompliance were observed.

- A revision of the Notice of Registration (NOR) was needed to reflect the current solid waste practices of the facility.
- The company did not make adequate hazardous waste determinations for waste oils generated on-site.
- The company manifest contained erroneous waste classification codes.

- Drum storage area access for inspection and emergency response was inadequate.

- Inspection logs lacked the time of inspection or the name of the inspector. Also, the temporary storage units did not have the accumulation date and labeling.

- Several company drums were noted to be in poor condition and leaking.

Nalco provided written responses on July 22, 1985, July 29, 1985, and July 25, 1986, in order to resolve these areas of noncompliance.

On March 25, 1985, Nalco submitted a Part B permit application to treat, store, and dispose of hazardous waste at its Sugarland facility. The Part B permit was issued to Nalco by the TWC on February 10, 1987, and was revised on March 15, 1988, and on July 1, 1989. According to the Part B permit application, Nalco Sugarland includes three RCRA-permitted units that are operated under Hazardous Waste Permit No. HW-50120-001 and Texas Registration No. 30601. These units are (1) one incinerator, (2) two storage tanks, and (3) one container storage area. The incinerator handles hazardous and nonhazardous waste and was placed in service in 1980. The capacities of the storage tanks are 11,000 and 9,400 gallons, respectively. The container storage area has a storage capacity of 28,400 gallons.

The TWC conducted solid waste compliance inspections on August 4, 1988, February 20 and 25, 1990, and February 1 and 11, 1991, noting specific points of noncompliance. The violations are summarized as follows:

- Failure to revise the NOR to reflect current solid waste practices at the facility.

- Failure to analyze specific waste streams in order to determine compliance with RCRA Land Disposal Restrictions (LDR).

- Failure to send notice or certification (regarding LDR) with shipments of incinerator ash waste or off-spec product.

- Failure to provide personnel training records (1987).

- Failure to maintain current operating records. Inspection times, hazardous waste treatment dates, and the status of drums within the container storage area, were all found to have been poorly documented. Two "less than 90-day" tanks (as well as other containers known to contain hazardous waste) lacked hazardous waste labels. Other containers labeled "Hazardous Waste" lacked starting dates of accumulation.

- Cracks and improper or inadequate secondary containment were noted in waste management facilities. Evidence of overflow and leaks were also noted.

- Failure to record concentrations in instances where cut-off was applicable.

- Failure to conduct weekend inspections at facilities requiring daily inspection, and failure to continue to inspect other facilities requiring inspections.

On March 1, 1989, EPA filed a three-count Complaint, Compliance Order, and Notice of Opportunity for Hearing against Nalco for violations observed during an inspection conducted on August 4, 1988. The complaint charged that Nalco violated Subtitle C of RCRA, Title 427 of U.S. Code (USC), Sections 6921 through 6939b, as amended by HSWA, and the regulations promulgated thereunder. The specific allegations are outlined below.

- Count 1 - Failure to Identify Restricted Waste

  Ash and refractory waste generated from the incineration of hazardous waste had not been tested to determine if the waste met the applicable treatment standards before land disposal. This action violated Title 40 of the Code of Federal Regulations (CFR), Section 268.7 by failing to properly determine if the waste was restricted from land disposal.

- Count 2 - Failure to Amend Waste Analysis Plan

  Nalco had failed to amend the waste analysis plan used at its facility to include the requirements of 40 CFR 268.7 and, therefore, violated 40 CFR 268.7 in the written waste analysis plan.

- Count 3 - Failure to Provide Notification of Certification to Treatment or Land Disposal Facilities

  Nalco had offered for transportation a restricted hazardous waste without attaching the notification and/or certification as required by 40 CFR 268.7(b)(4) or (5), including the appropriate notices and/or certifications with the manifest for shipments of restricted hazardous waste.

Under a Consent Agreement and Final Order, that was issued on April 10, 1990, Nalco was ordered to (1) fully comply with the ban on disposal of restricted waste in accordance with 40 CFR 268, (2) submit to EPA a plan that describes the procedure that Nalco proposed to implement to ensure compliance with 40 CFR 268; including, but not limited to, any procedure for identifying wastes that Nalco generates or may generate in the future that are or may become restricted from land disposal, (3) attach notifications to the manifests of spent solvent wastes (F001-F005) to be sent to a treatment, storage, or disposal facility, in accordance with 40 CFR 268.7, (4) amend and submit to EPA for approval a waste analyses plan that includes provisions to meet the requirements of 40 CFR 268.7, and (5) pay a civil penalty of $7,750.

In a letter dated November 15, 1990, from Allyn M. Davis, Director of the Hazardous Waste Management Division of EPA, it was noted that the requirements of the Consent Agreement and Final Order were met and the Order was closed.

The facility holds EPA National Pollutant Discharge Elimination System (NPDES) Permit No. TX0004642 (Texas Permit No. 00726) for storm water discharge. The wastewater pretreatment system handles process wastewater and contaminated storm water. The system discharges to the Brazos River Authority (BRA) Sugarland Regional Wastewater Plant (SRWP). Sanitary wastewater and nonprocess wastewater is also routed to the BRA SRWP.

According to a Preliminary Assessment Facility Checklist (January 21, 1986), Nalco holds 12 Texas Air Control Board (TACB) permits. These permits regulate the incinerator and various storage tank vents.

3.0 ENVIRONMENTAL SETTING

This section describes the environmental setting of Nalco Sugarland and the water resources of the Sugarland area. This information provides a basis for evaluating potential impacts on human health and the environment from potential releases of hazardous constituents to the environment from the SWMUs identified at the facility. The following subsections describe the land use, climate, topography and surface water, geology, and ground water in the vicinity of Nalco Sugarland.

3.1 LAND USE

Nalco Sugarland is located on a 30.12-acre tract of land just north of U.S. Highway 90A and the Southern Pacific Railroad crossing and west of Ulrich Street, at 7701 U.S. Highway 90A in Sugarland, Fort Bend County, Texas (Figure 1). Nalco Sugarland is located in the drainage area of Bullhead Bayou, Segment 1202, of the Brazos River Basin (TWC, 1989).

Land use in Fort Bend County near Nalco Sugarland is commercial, industrial, agricultural, and residential. The primary crops are cotton, rice, sugar cane, and corn. Several industries associated with agriculture are operated in the area. A sugar refinery and cannery, operated by Imperial Sugar company, is located north and east of Nalco Sugarland.

Other industries in the vicinity include a manufacturing plant for bricks, and refineries for the production of crude oil, natural gas, sulfur, and salt. Much of the industrial expansion in Sugarland can be attributed to the expansion of industrial areas around the greater Houston area (U.S. Department of Agriculture [USDA], 1960).

3.2 CLIMATE

The Sugarland area is characterized by long growing seasons with a warm climate. Summers are hot and dry and winters are short and mild. The long frost-free period is suitable for diversified agriculture, and it favors the development of pastures and crops.

The mean annual temperature of Fort Bend County is 69°F and the average annual precipitation is 43.9 inches. Prevailing winds from October through January are from the north, and from February through September winds are from the south and southeast. Tropical hurricanes from the Gulf of Mexico occasionally reach the county, bringing high winds and torrential rains. The relative humidity of the county is high because it is located about 45 miles west of the Texas Gulf Coast (USDA, 1960).

3.3 TOPOGRAPHY AND SURFACE WATER

Nalco Sugarland is situated in the drainage area of Bullhead Bayou, Segment 1202, of the Brazos River Basin. The topography of this region is characterized by level to slightly sloped terrain with slow surface drainage (USDA, 1960). Shallow field and roadside ditches provide adequate drainage. About 1/3 mile north, west, and east of Nalco Sugarland is the nearest surface water body contact point, Oyster Creek, which winds through the surrounding area. The Brazos River is about 3 miles southwest of Nalco Sugarland.

3.4 GEOLOGY

The geology beneath Nalco Sugarland and the surrounding area consists of deposits of the Houston Group. The average thickness of the Houston Group is about 1,500 feet. The group is divided into the Beaumont Clay and the Lissie Sand (Sellards, 1932).

The Beaumont Clay consists of a plastic, poorly bedded, clay unit interbedded with lenses and continuous layers of sand. The clay varies between bluish gray, yellowish gray, and some shades of red (Sellards, 1932). The Beaumont Clay in Fort Bend County is about 185 feet thick and overlies the Lissie Sand.

The Lissie Sand unconformably overlies the Goliad Sand. The Lissie Sand consists of thick beds of sand interbedded with lenses of gravel, clay, and silt. The Lissie Sand is distinctly red, orange-red, or pinkish buff (Sellards, 1932). The thickness of the Lissie Sand in the Fort Bend County area is about 265 feet (Sellards, 1932). The underlying Goliad Sand is grayish buff and is much lighter than the Lissie Sand.

3.5 GROUND WATER

Ground water of good quality is available from wells in all parts of Fort Bend County. Small quantities of water are available at depths of 16 to 20 feet below ground surface (bgs). During dry summer months the shallow wells fail. Ground water is available in sufficient quantity for household and livestock uses and can be obtained from depths of 70 to 80 feet.

Ground water from the Chicot Aquifer can be obtained from depths of 300 to 500 feet bgs (USDA, 1960). Ground water used for the public water supply is produced from the Evangeline Aquifer at depths ranging from 600 to 3,750 feet (University of Texas [UT], 1977).

Ten ground-water wells are located within a 1-mile radius of Nalco (Figure 4). Seven of the wells, about 1 mile northeast of the facility, are for municipal and industrial uses. Three wells, about 1/4 mile northeast of the facility, are for drinking and process water uses (Figure 4). The city of Sugarland produces ground water from a well in the Evangeline Aquifer, completed at 1,665 feet bgs, that is used as public water supply (TDWR, 1983).

4.0 SOLID WASTE MANAGEMENT UNITS

This section discusses SWMUs at the Nalco facility and evaluates actual or potential releases from those units. PRC identified 26 SWMUs during the PR and VSI. Figure 3 shows the locations of the SWMUs. Photographs are provided in the Appendix.

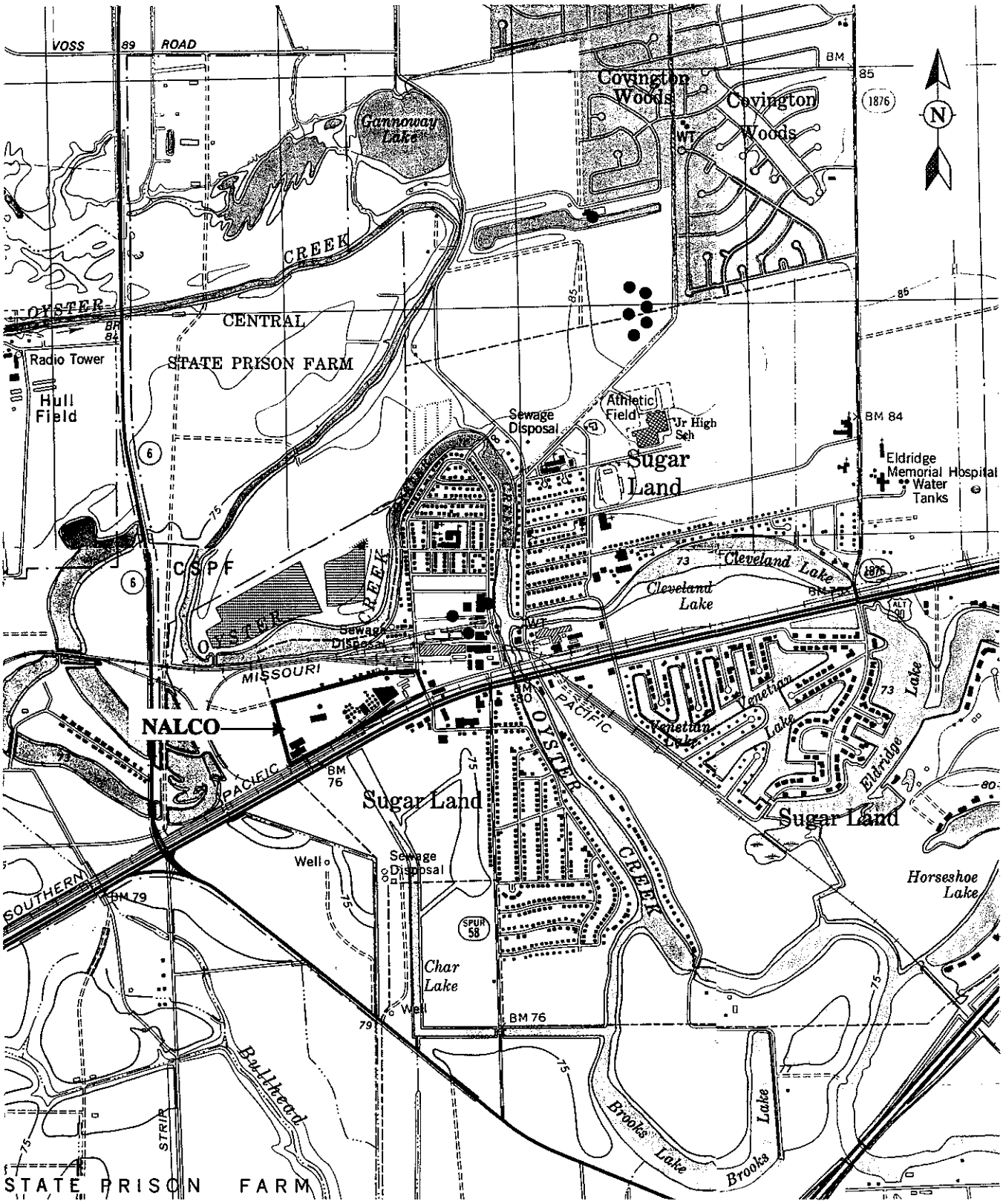
4.1 SWMU NO. 1 - INCINERATOR WASTE TRANSFER AREA

Description

This SWMU is a 5-by-10-foot concrete slab with a 4-inch-high concrete berm for secondary containment (Photograph No. 1), west of the incinerator (SWMU No. 5). This area includes an air-driven diaphragm pump and pipes which transfer liquids to the incinerator feed tanks (SWMU No. 2).

Status

This unit is not RCRA-regulated. This unit has been operating since December 1, 1980, when the incinerator began operation.



LEGEND:

● GROUND-WATER WELL LOCATIONS

0 1000 2000

SCALE IN FEET

SOURCE: NALCO, 1986

NALCO CHEMICAL COMPANY
SUGARLAND, TEXAS

FIGURE 4
GROUND-WATER WELL LOCATIONS

PRC Environmental Management, Inc.

Waste Type

This unit handles all waste that is fed to the incinerator. The waste includes centrifuge sludge, ammonium hydroxide, miscellaneous liquid organic laboratory waste, wastewater containing organics, miscellaneous off-specification liquids, and oils. Wastes identified by EPA waste codes D001, D002, and D003 are handled in this unit.

Waste Management

Waste material collected in containers around the facility that will be incinerated is transported to this unit. The air-driven diaphragm pump is used to transfer the containerized waste material to the incinerator feed tanks (SWMU No. 2). The empty containers are then returned to their collection points or are moved to the Port-A-Feed cleaning unit.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.2 SWMU NO. 2 - INCINERATOR FEED TANKS

Description

This unit consist of Tanks T-115, S-782, and S-783 (Photograph No. 2). This area is a 20-by-30-foot concrete slab with a concrete berm. The original berm, which was built in 1980, was 24 inches high. In 1986, the berm was upgraded to a height of 42 inches (Nalco Chemical Company, 1986). Tank T-115 is a 700-gallon stainless steel tank. Tank S-782 is an 11,000-gallon, cone-bottom, carbon steel tank. Tank S-783 is a 9,400-gallon, flat-bottom, carbon steel tank.

Status

This unit is RCRA-regulated and is included in Nalco's Part B permit. This unit has been active since December 1980.

Waste Type

This unit handles all waste that is fed to the incinerator. The waste includes centrifuge sludge, ammonium hydroxide, miscellaneous liquid organic laboratory waste, wastewater containing organics, miscellaneous off-specification liquids, and oils. Wastes identified by EPA waste codes D001, D002, and D003 are handled in this unit.

Waste Management

Waste material collected in containers at Nalco Sugarland for on-site incineration is transferred to Tanks S-782 and S-783 using the incinerator waste transfer area. The waste is then pumped into Tank T-115 for mixing, through a wire mesh screen to remove solids, and into the incinerator.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of any release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.3 SWMU NO. 3 - INCINERATOR

Description

The incinerator (Photographs No. 1 and 3) operates as a heat recovery boiler. Heat generated by burning of the waste is used to generate steam for use throughout Nalco Sugarland. The heating capacity of the unit is 20,000,000 British thermal units (BTU) per hour (TWC, 1989). The incinerator includes a caustic scrubber for emission control. The stack discharge is about 50 feet above ground level. The incinerator is located on a 75-by-40-foot concrete slab surrounded by a 6-inch-high berm, which is centrally located at Nalco Sugarland.

Status

This RCRA-regulated unit has been active since December 1, 1980, and is included in Nalco's Part B permit.

Waste Type

The waste burned in the incinerator includes centrifuge sludge, ammonium hydroxide, miscellaneous liquid organic laboratory waste, wastewater containing organics, miscellaneous off-specification liquids, and oils. Wastes identified by EPA waste codes D001, D002, and D003 are handled in this unit.

Waste Management

The incinerator is operated under the conditions specified in Nalco's Part B permit. These conditions include (1) a minimum combustion gas temperature of 1,800°F, (2) a maximum hazardous waste feed rate of 5,000 pounds per hour, (3) a maximum hazardous waste feed ash content of 5,000 parts per million by weight, (4) a maximum hazardous waste feed total chlorine content of 200 pounds per hour, and (5) only natural gas, as auxiliary fuel, may be injected through the gas ring surrounding the waste feed nozzle (TWC, 1989).

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.4 SWMU NO. 4 - TANK 701 and 703 TRANSFER AREA

Description

This transfer area (Photograph No. 4) is a 5-by-5-foot concrete slab, sloped toward its center to collect any spills. The area surrounding this 5-by-5-foot slab is also constructed of concrete.

Status

This unit is not regulated and has been active since 1985.

Waste Type

This unit is used to transfer waste from containers to Tanks 701 and 703. This waste includes plant steam condensate, centrifuge sludge, wash water contaminated with heavy metals, miscellaneous organic laboratory waste, miscellaneous off-specification liquids containing organics, and wastewater containing organics. Wastes identified by EPA waste codes D001, D002, D003 and D007 are transferred through these tanks.

Waste Management

This unit is used to transfer waste from containers to Tanks 701 and 703.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

This SWUM has been active since 1985, and no evidence of any release from this unit was identified during the PR and the VSI.

4.5 SWMU NO. 5 - TANK 703

Description

Tank 703 (Photograph No. 5) is an 8,750-gallon vertical carbon steel tank, located on a 50-by-18-foot concrete slab with a 40-inch-high concrete berm. Tank 703 is located next to Tank 701 (SWMU No. 6).

Status

This RCRA-regulated unit has been active since December 1986. This tank was located about 330 feet northwest of its present location from 1969 to 1986, in another area of secondary containment (Photograph No. 6).

Waste Type

Tank 703 is used for storage of plant steam condensate centrifuge sludge, wash water contaminated with heavy metals, miscellaneous organic laboratory waste, miscellaneous off-specification liquids containing organics, and wastewater containing organics. Wastes identified by EPA waste codes D001, D002, D003 and D007 are accumulated in this unit.

Waste Management

Waste is accumulated in this tank before being shipped to an on-site incinerator for disposal. In 1991, 780,000 pounds of waste were shipped from this tank to an off-site disposal facility.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU. Tank 703 was moved in 1986 to segregate waste storage tanks from raw material and product storage tanks.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.6 SWMU NO. 6 - TANK 701

Description

This SWMU is a 5,600-gallon carbon steel tank (Photograph No. 5) located next to Tank 703 (SWMU No. 5) on the same 50-by-18-foot concrete slab with a 40-inch-high concrete berm for secondary containment.

Status

This RCRA-regulated unit has been active since September 1, 1985.

Waste Type

Tank 701 is used to store wastewater containing organics and arsenic-contaminated liquids. These wastes are identified by EPA waste codes D001 and D004, respectively.

Waste Management

Waste is accumulated in this tank until it is sent off site for disposal. Tank 701 is used for less than 90-day storage.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.7 SWMU NO. 7 - TANK S-700

Description

Tank S-700 is a 6,000-gallon vertical carbon steel tank located on a 50-by-18-foot concrete slab with a 40-inch-high concrete berm for secondary containment (Photograph No. 7). This area also contains three raw material tanks.

Status

This RCRA-regulated unit has been inactive since early 1987.

Waste Type

Tank S-700 was used to store wastewater containing organics and arsenic-contaminated liquids. These wastes are identified by EPA waste codes D001 and D004.

Waste Management

Waste was accumulated in this tank until it was sent off site for disposal. Tank S-700 was used for less than 90-day storage.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.8 SWMU NO. 8 - RESEARCH CONTAINER STORAGE AREA

Description

This SWMU is a 35-by-50-foot concrete slab with a metal canopy cover (Photograph No. 8). It usually contains six 55-gallon drums. The maximum capacity of this unit is twelve 55-gallon drums.

Status

This unit is RCRA-regulated and has been active since the 1970s.

Waste Type

This unit handles all miscellaneous lab wastes, identified by EPA waste codes D001, D002, D007, and D009.

Waste Management

Small amounts of laboratory wastes are collected and hand-poured into the 55-gallon drums. The drums are stored for less than 90 days and shipped off site for disposal.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.9 SWMU NO. 9 - LABORATORY WASTE STORAGE TANK AREA

Description

This SWMU is a 35-by-50-foot concrete slab with a metal canopy cover (Photograph No. 8). Two carbon steel aboveground tanks were located in this area. Tank A had a 300-gallon capacity, and Tank B had a 600-gallon capacity.

Status

The two RCRA-regulated carbon steel tanks were operational from January 1, 1975 until sometime between 1986 and 1989. The tanks were removed from the facility; however, the date of removal could not be determined.

Waste Type

Both tanks in this unit contained miscellaneous organic liquid laboratory wastes that are identified by EPA waste codes D001, D002, and D003. Tank A (300-gallon) handled combustible waste, while Tank B (600-gallon) handled noncombustible waste.

Waste Management

Combustible and noncombustible laboratory wastes were transferred into these two tanks for storage before disposal off site.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.10 SWMU NO. 10 - RESEARCH LABORATORY COMPACTOR

Description

This SWMU is a general trash compactor that is located on a concrete slab (Photograph No. 9). The unit has a capacity of about 20 cubic yards.

Status

This non-regulated unit has been active since 1984.

Waste Type

This unit handles the nonhazardous, miscellaneous trash from the research buildings.

Waste Management

Nonhazardous, miscellaneous trash collected from the research buildings is compacted and stored in this unit until it is transported off site for disposal.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.11 SWMU NO. 11 - BULK STORAGE COMPACTOR

Description

This SWMU is a trash compactor that is located on a concrete slab within the main plant area (Photograph No. 10). The unit has a 20-cubic-yard capacity.

Status

This unit is currently active and has been operational since early 1986.

Waste Type

This unit handles wastes that include (1) corn, (2) perlite, (3) clay, (4) diatomaceous earth, (5) silicates, (6) containers with residual Class II waste, and (7) general plant refuse.

Waste Management

General trash and other waste are transported to this unit from throughout Nalco Sugarland. The waste is compacted and stored here until it is transferred off site for disposal.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this unit.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.12 SWMU NO. 12 - HAZARDOUS WASTE DRUM STORAGE AREA

Description

This SWMU is a trapezoidal concrete slab that measures about 2,750 square feet with a capacity of 500 drums (Photograph No. 11). This area is next to the nonhazardous waste storage area (SWMU No. 13). A concrete berm surrounds the unit.

Status

This unit is RCRA-regulated and is permitted to handle hazardous waste. This unit has been active since May 1, 1975.

Waste Type

This unit handles hazardous waste that is generated at Nalco Sugarland. The wastes include (1) centrifuge sludge, (2) filter cake, (3) contaminated wash water, (4) miscellaneous laboratory waste, (5) asbestos insulation, (6) organic-contaminated insulation, and (7) miscellaneous off-specification products. Wastes identified by EPA waste codes D001, D002, D004, D007, and D009 are managed in this unit.

Waste Management

Hazardous wastes collected in drums located throughout Nalco Sugarland are transported to this unit. The waste is stored here before disposal off site.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this unit.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.13 SWMU NO. 13 - NONHAZARDOUS WASTE STORAGE AREA

Description

This SWMU is a trapezoidal concrete slab that measures about 5,600 square feet (Photograph No. 12). This area is located next to the hazardous waste storage area (SWMU No. 12). A 4-inch-high concrete berm surrounds the unit.

Status

This unit is not RCRA-regulated and has been operating since May 1, 1985.

Waste Type

Containers of miscellaneous nonhazardous waste that cannot be treated in the new wastewater treatment system (SWMU No. 23) are stored in this area.

Waste Management

Containers of nonhazardous waste collected throughout Nalco Sugarland are transported to this area for storage before disposal off site.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.14 SWMU NO. 14 - SALT BIN STORAGE AREA

Description

This SWMU consists of two open-top 20-cubic-yard containers (Photograph No. 13). The containers are located on a concrete slab that is bermed for secondary containment.

Status

This unit is a RCRA-regulated unit and has been active since 1975.

Waste Type

This unit handles the sodium chloride salt that is generated from a water-based reaction of ethylene dichloride, ammonia, and caustic. Excess salt is centrifuged from the liquid product and collected.

Waste Management

Waste material (sodium chloride salt) is accumulated and stored in this unit until it is transferred off site for disposal.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with the staging area.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.15 SWMU NO. 15 - CHROMATE WASTE TANK

Description

This SWMU was a 4,000-gallon aboveground tank. A sump was also associated with this unit. The sump collected rainwater, leaks, and spills, which were pumped into the chromate waste tank. The unit was in operation between January 1, 1985, and early 1987, when it was removed. The location of the former unit is now covered with a concrete slab (Photograph No. 14).

Status

This RCRA-regulated tank was placed into service on January 1, 1965. Chromate waste has not been generated since about 1980. The unit became inactive and was removed in early 1987.

Waste Type

This unit handled chrome-bearing sludge and wash water containing heavy metals. These wastes are identified by EPA waste codes D001, D002, D007, and D009.

Waste Management

The sump associated with this unit would collect rainwater, leaks, and spills, which would be pumped into the chrome waste tank. The chrome waste tank's contents were disposed of off site. Chromate waste generation ceased in 1980.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.16 SWMU NO. 16 - RAW MATERIAL BAG COMPACTOR

Description

This SWMU is a metal compactor that has a 20-cubic-yard capacity (Photograph No. 12). It is located on the concrete slab designated as the nonhazardous waste storage area (SWMU No. 13).

Status

This is not a RCRA-regulated unit and has been operating since January 1, 1984.

Waste Type

This unit handles empty raw material bags and burlap bags. The raw material is antimony trioxide. This waste is classified as nonhazardous Class I waste.

Waste Management

This unit compacts and stores bags for disposal off site.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.17 SWMU NO. 17 - FORMER WASTEWATER TREATMENT SUMP

Description

This SWMU is the former site of a concrete 350-gallon sump (Photograph No. 15) that was associated with the former wastewater treatment system. It was part of the neutralization process.

Status

The unit was active from January 1975 to 1990, but it is no longer active and has been removed. This was not a RCRA-regulated unit.

Waste Type

The unit handled wastewater that contained organics from the other Nalco Sugarland processes.

Waste Management

Wastewater that was collected by this unit was pumped into the former wastewater treatment system.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

This unit was deactivated and removed from Nalco Sugarland.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.18 SWMU NO. 18 - 500-GALLON SUMP

Description

This SWMU was a 500-gallon concrete aboveground storm water tank. This unit was used as an emergency spill containment tank. The unit was in operation from January 1975 to mid 1990, when it was removed. A concrete sump has been built in the location of the former unit (Photograph No. 16).

Status

This nonregulated unit was operational from January 1975 to mid 1990. The unit is inactive and has been removed.

Waste Type

This unit handled wastewater and storm water that possibly contained organics from other processes.

Waste Management

Wastewater that was collected in this unit was pumped to Nalco's permitted industrial wastewater pretreatment system.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.19 SWMU NO. 19 - PARTS-CLEANER UNIT

Description

The parts-cleaner unit (Photograph No. 17) consists of a sink that is mounted on a 30-gallon drum containing Safety-Kleen 105 solvent (mineral spirits). The parts-cleaner unit is located in Nalco Sugarland's truck maintenance building.

Status

Nalco has been using the parts-cleaner unit as a non-regulated unit since the late 1980s.

Waste Type

The used Safety-Kleen 105 solvent contains mineral spirits.

Waste Management

The Safety-Kleen sales representative cleans and inspects the parts-cleaner unit monthly and replaces the used solvent with a drum containing fresh solvent. The Safety-Kleen company recycles the used solvent at a Safety-Kleen recycling center.

Environmental Releases

No documented release was identified during the PR or VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.20 SWMU NO. 20 - WASTE OIL TANK

Description

The waste oil tank is a 300-gallon aboveground carbon steel tank (Photograph No. 18) east of the truck maintenance building. The waste oil tank is located on a concrete slab.

Status

This unit is not RCRA-regulated and has been operating for an unknown period of time.

Waste Type

The waste oil tank is used to collect used crankcase oil that is generated by maintenance activities.

Waste Management

Used crankcase oil generated by maintenance of Nalco trucks is collected and pumped into this tank. The used oil is then pumped into drums or tote tanks for transportation to the incinerator waste transfer area. The used oil is burned in the incinerator (SWMU No. 3).

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this unit.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.21 SWMU NO. 21 - TOTE TANK CLEANING TANKS

Description

This SWMU is the site of two aboveground FRP tanks (Photograph No. 19). It is located on the concrete slab on which the tote tank cleaning occurs. Both FRP tanks have a capacity of 10,000 gallons.

Status

Both of these RCRA-regulated tanks are active and have been operational since the late 1980s.

Waste Type

This unit handles the wash water from the tote tank cleaning process.

Waste Management

Wash water from the tote tank cleaning process is collected in this unit and is ultimately transferred to the wastewater treatment system.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this unit.

Remedial Action Taken

No remedial action has been taken in association with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.22 SWMU NO. 22 - FORMER WASTEWATER TREATMENT SYSTEM

Description

This inactive SWMU (Photograph No. 20) consisted of five components: (1) process sewer storm water diversion sump, (2) wastewater belt skimmer oil collection, (3) 98,000-gallon wastewater storage tank, (4) 1,700-gallon neutralization tank, and (5) 6,000-gallon pH neutralization tank. These components have been removed. The process sewer storm water diversion sump area has been converted to another process while there is no activity in the other areas.

Status

This was not a RCRA-regulated unit and has been inactive since 1990. The various components were operational since 1970 or 1975 depending on the component.

Waste Type

The unit handled storm water spills and process wastewater spills. The storm water may have been contaminated with organics.

Waste Management

This unit was used for treatment of wastewater and storm water. The treated wastewater was discharged to the publicly owned treatment works (POTW).

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

This unit was deactivated and dismantled.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.23 SWMU NO. 23 - NEW WASTEWATER TREATMENT SYSTEM

Description

The new wastewater treatment system (Photograph No. 21) consists of (1) a sludge bin storage area (Photograph No. 22), (2) a sludge filter press (Photograph No. 23), (3) an activated sludge unit, (4) the unit area collection sump, and (5) Tank S-131 (Photograph No. 24). The entire unit is on a concrete slab and has secondary containment. The sludge filter press has an area of 1,785 square feet, and the unit area collection sump is double-walled.

Status

This unit has been active since 1990 and is not RCRA-regulated.

Waste Type

The unit handles storm water, spills, and process wastewater possibly contaminated with organic compounds.

Waste Management

The liquid wastes are treated and then discharged to the POTW. The waste sludge is collected for off-site disposal.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been taken in association with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.24 SWMU NO. 24 - STORM WATER BASIN

Description

This SWMU is a subsurface double-walled steel-reinforced concrete basin with leak detection and a capacity of about 157,000 gallons (Photographs No. 16 and 25). It also includes an oil-skimming belt, which removes free-floating oils and grease.

Status

This unit is not RCRA-regulated and is active. The storm water basin was removed in early 1990 and was rebuilt in mid-1990.

Waste Type

This SWMU receives storm water runoff collected throughout Nalco Sugarland. This storm water may contain organics from spills, drips, and other sources throughout Nalco Sugarland.

Waste Management

Storm water runoff from Nalco Sugarland is directed to this unit where an oil-skimming belt removes free-floating oil and grease. The oil and grease are collected in a tote tank and are disposed of in the on-site incinerator. The water is then pumped into Tank S-131.

Environmental Releases

No documented release was identified during the PR or VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

No remedial action has been associated with this SWMU.

Suggested Action

PRC does not recommend an RFI.

Reasons

No evidence of any release from this unit was identified during the PR and the VSI.

4.25 SWMU NO. 25 - WASTE PILE

Description

This waste pile was listed on Nalco's NOR in 1989 and 1990. However, it was not listed on the 1991 NOR. No information was available to indicate the size or location of this waste pile. According to Nalco personnel, this waste pile was probably located where the former wastewater treatment system (SWMU No. 22) was located.

Status

This unit is inactive. The regulatory status of this unit could not be determined from the information available. The waste pile was probably active during 1989 and 1990.

Waste Type

No information was available to indicate the type of waste that was placed in the waste pile.

Waste Management

No information was available to describe the waste management practices that were associated with this unit.

Environmental Releases

Since the exact location of this SWMU is not known, information concerning environmental releases was not available.

Remedial Action Taken

Remedial actions associated with this SWMU could not be determined. The waste pile was not present at the time of the VSI and may have been removed in 1990 or 1991.

Suggested Action

PRC recommends an RFI.

Reasons

There is lack of information regarding this unit including status, waste type, waste management, environmental releases, and previous remedial actions taken.

4.26 SWMU NO. 26 - FORMER BURN PIT

Description

According to the Nalco representatives, a burnpit may have been present at Nalco Sugarland, south of the new wastewater treatment system (Photograph No. 26). No information was available regarding the size of this unit.

Status

This unit is inactive. The regulatory status of this unit could not be determined from the information available. This unit probably became inactive when the on-site incinerator (SWMU No. 3) was installed.

Waste Type

No information was available to indicate the type of waste that was disposed of in the unit.

Waste Management

No information was available to describe the waste management practices that were associated with this unit.

Environmental Releases

No documented release was identified during the PR and the VSI, and no visible evidence of a release was associated with this SWMU.

Remedial Action Taken

Previous remedial actions associated with this SWMU could not be determined, although the suspected location of the pit is now covered by concrete.

Suggested Action

PRC recommends an RFI.

Reasons

There is a lack of information regarding this unit, including status, waste type, waste management, environmental releases, and remedial actions taken.

5.0 AREAS OF CONCERN

This section discusses the AOCs identified during the PR and the VSI. An AOC is not necessarily a SWMU; however, such an area is either suspected of potential contamination or provides a potential contaminant release pathway.

5.1 AOC NO. 1 - OXYALKYLATION AREA

The oxyalkylation area (Photograph No. 27) is a process area of Nalco Sugarland that was active from 1953 to mid-1990. According to Nalco representatives, soil borings and ground-water samples collected in this area were found to be contaminated with organic constituents. No additional information regarding the constituents and levels of contamination were available in any files reviewed. Nalco representatives indicated that information regarding this area has been sent to TWC

during the past year. PRC recommends an RFI for this unit because there is suspected soil and ground-water contamination in this area.

5.2 AOC NO. 2 - ALKYLATE TANK FARM AREA

The alkylate tank farm area (Photograph No. 28) is a 45-by-80-foot concrete slab with a 40-inch-high concrete berm and 10 storage tanks, located south of the hazardous waste drum storage area (SWMU NO. 12). According to Nalco representatives, Nalco discovered in late 1991 organic soil contamination caused by a leak from the bottom of Tank 668. A letter was sent to TWC and Tank 668 was removed. Two other tanks of the same age and design as Tank 668 and in this area are inactive. Nalco removed about 10 cubic yards of soil from the area. No documentation was available regarding this area. PRC recommends an RFI for this AOC because there is suspected soil contamination in this area.

5.3 AOC NO. 3 - 16 UPRIGHT UNLOADING AREA

The 16 upright unloading area (Photograph No. 29) is located about 80 feet southwest of the hazardous waste drum storage area (SWMU No. 12) and immediately west of the 16 upright tank area. According to Nalco representatives, about 40 cubic yards of soil that were contaminated with organics were removed from this area in 1987. PRC recommends an RFI for this unit because soil contamination is suspected in this area.

6.0 HUMAN AND ENVIRONMENTAL TARGETS

This section discusses the potential human and environmental targets of a release of hazardous material into the environment from the SWMUs and AOCs at Nalco. The potential pathways include air, soil, surface water, subsurface gas, and ground water. Nalco is located in an industrial and commercial area with some agricultural and residential property about 1/2 mile from the facility. About 250 people are employed at the facility. A 6-foot-high fence topped with barbed wire surrounds the property and limits access to Nalco Sugarland.

6.1 AIR

Operations at Nalco Sugarland involve material-handling methods (such as storage, transport, reaction, and blending) that have a low potential to release emissions to the air because the tanks are vented either to collection devices or to the on-site incinerator.

6.2 SOIL

Soil contamination is suspected at the facility; however, no information regarding specific contaminants, concentrations, or locations was available.

6.3 SURFACE WATER

The potential for surface water release is low to moderate because the facility maintains runon and runoff control structures for the entire property and secondary containment for each SWMU. Available information, however, is limited regarding waste management practices, waste types managed, environmental releases, and remedial actions taken between 1933 and 1980. The closest surface water to Nalco Sugarland is Oyster Creek, which winds around the northern half of the facility about 1/3 mile from the property.

6.4 SUBSURFACE GAS

The potential for subsurface gas generation or release is low, because the facility maintains secondary containment for each SWMU and does not have any underground storage tanks.

6.5 GROUND WATER

Ground-water contamination is suspected at the facility; however, no information regarding contaminants, concentrations, or locations was available.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Nalco is a chemical manufacturing facility that produces specialty chemicals for the oil field servicing, boiler maintenance, and wastewater treatment industries. The facility has been operating at the facility since 1933. From 1933 to 1977 the facility deposited waste at Char Lake, located about 3/4 mile south of Nalco Sugarland. Char Lake was capped with a compacted clay cover in 1981.

PRC identified 26 SWMUs at the facility; 18 are active and 8 are inactive. PRC also identified 3 AOCs at the facility. SWMU and AOC information is summarized in Table 1.

Based on information obtained during the PR and the VSI and presented in Sections 4.0 and 5.0, PRC recommends that RFIs be conducted for the following SWMUs and AOCs:

- Waste Pile (SWMU No. 25)
- Former Burn Pit (SWMU No. 26)
- Oxyalkylation Area (AOC No. 1)
- Alkylate Tank Farm Area (AOC No. 2)
- 16 Upright Unloading Area (AOC No. 3)

TABLE 1

SWMU AND AOC SUMMARY

Sheet 1 of 10

Unit	SWMU No. 1	SWMU No. 2	SWMU No. 3
Unit Name	Incinerator Waste Transfer Area	Incinerator Feed Tank	Incinerator
Description	A concrete 5-by-10-foot area with a 4-inch-high concrete berm	A 20-by-30-foot concrete area with a 42-inch-high concrete berm containing a 700-gallon tank, a 11,000-gallon tank, and a 9,400-gallon tank	A 20,000,000 BTU per hour energy recovery boiler on a 75-by-40-foot concrete slab with secondary containment
Operating Status	Active since December 1, 1980	Active since December 1980	Active since December 1, 1980
Regulatory Status	Not regulated	RCRA-regulated	RCRA-regulated
Waste Type	Miscellaneous organic liquid laboratory wastes, wastewater containing organics, off-specification liquid products, and oils	Miscellaneous organic liquid laboratory wastes, wastewater containing organics, off-specification liquid products, and oils	Miscellaneous organic liquid laboratory wastes, wastewater containing organics, off-specification liquid products, and oils
Waste Management	This unit is used to transfer waste from containers to the incinerator feed tanks.	This unit is used to blend and store waste before transfer to the incinerator.	This unit is used for the disposal of hazardous and nonhazardous waste generated by Nalco Sugarland and recovers energy from the process by producing steam.
Release History	No documented release history	No documented release history	No documented release history
Release Pathway	NA	NA	NA
Remedial Action Taken	None	None	None
Release Potential	Low	Low	Low
Potential Pathway	NA	NA	NA
Reason for Release Potential Rating	This unit is protected from storm water runon and runoff, and it is provided with secondary containment.	This tank is protected from storm water runon and runoff, and it is provided with secondary containment.	The incinerator is protected from storm water runon and runoff, and it is provided with secondary containment.
Need for RFI	No	No	No

TABLE 1

SWMU AND AOC SUMMARY

Sheet 2 of 10

Unit	SWMU No. 4	SWMU No. 5	SWMU No. 6
Unit Name	Tank 701 and 703 Transfer Area	Tank 703	Tank 701
Description	A 5-by-5-foot concrete slab sloped toward its center to collect any spills	An 8,750-gallon tank on a 50-by-18-foot concrete slab with a 40-inch-high concrete berm	A 5,600-gallon tank located on a 50-by-18-foot concrete slab with a 40-inch-high concrete berm
Operating Status	Active since 1985	Active since 1986	Active since September 1985
Regulatory Status	Not regulated	RCRA-regulated	RCRA-regulated
Waste Type	Plant steam condensate, wash water containing heavy metals, laboratory organic waste, off-specification liquid products, and wastewater containing organics	Plant steam condensate, wash water containing heavy metals, laboratory organic waste, off-specification liquid products, and wastewater containing organics	Plant steam condensate, wash water containing heavy metals, laboratory organic waste, off-specification liquid products, and wastewater containing organics
Waste Management	This unit is used to transfer waste from containers to Tanks 701 and 703.	Waste is stored in this unit before shipment off site for disposal.	Waste is stored in this unit before shipment off site for disposal.
Release History	No documented release history	No documented release history	No documented release history
Release Pathway	NA	NA	NA
Remedial Action Taken	None	None	None
Release Potential	Low	Low	Low
Potential Pathway	NA	NA	NA
Reason for Release Potential Rating	This unit handles containers of waste, is provided with storm water runon and runoff control, and secondary containment.	This is provided with storm water runon and runoff control and secondary containment.	This unit is provided with storm water runon and runoff control and secondary containment.
Need for RFI	No	No	No

TABLE 1

SWMU AND AOC SUMMARY

Sheet 3 of 10

Unit	SWMU No. 7	SWMU No. 8	SWMU No. 9
Unit Name	Tank S-700	Research Container Storage Area	Laboratory Waste Storage Tank Area
Description	A 6,000-gallon tank on a 50-by-18-foot concrete slab with a 40-inch-high berm	A 35-by-50-foot concrete slab with a metal canopy cover	Two aboveground storage tanks (600-gallon and 300-gallon) that were on a concrete slab with a metal canopy for cover
Operating Status	Inactive since 1987	Active since 1970s	Inactive since 1980s
Regulatory Status	RCRA-regulated	RCRA-regulated	RCRA-regulated
Waste Type	Wastewater containing organics and arsenic-contaminated liquids	Miscellaneous laboratory waste	Miscellaneous laboratory waste
Waste Management	Waste was stored in this unit before shipment off-site for disposal.	A maximum of 12 55-gallon drums are accumulated in the area before being shipped off-site for disposal or transferred to SWMU No. 12.	Combustible and noncombustible laboratory wastes were stored in these tanks before off-site disposal.
Release History	No documented release history	No documented release history	No documented release history
Release Pathway	NA	NA	NA
Remedial Action Taken	None	None	None
Release Potential	Low	Low	Low
Potential Pathway	NA	NA	NA
Reason for Release Potential Rating	This unit has been inactive since 1987 and has not managed any waste since it became an inactive unit.	This unit is protected from storm water runon and runoff and is provided with secondary containment.	The tanks have been removed, the area is protected from storm water runon and runoff, and is provided with secondary containment.
Need for RFI	No	No	No

TABLE 2

SWMU AND AOC SUMMARY

Sheet 4 of 10

Unit	SWMU No. 10	SWMU No. 11	SWMU No. 12
Unit Name	Research Laboratory Compactor	Bulk Storage Compactor	Hazardous Waste Drum Storage Area
Description	A 20-cubic-yard trash compactor	A 20-cubic-yard trash compactor	A 2,750 square foot concrete slab with a 4-inch-high berm surrounding the area
Operating Status	Active	Active	Active since May 1, 1975
Regulatory Status	Not regulated	Not regulated	RCRA-regulated
Waste Type	Miscellaneous nonhazardous trash from the research building at Nalco Sugarland	Miscellaneous nonhazardous trash from the facility at Nalco Sugarland	Wash water containing organics, laboratory organic waste, asbestos, insulation contaminated with organics, and off-specification liquid products
Waste Management	Trash is compacted and stored in this unit until it is transported off site for disposal.	Trash is compacted and stored in this unit until it is transported off site for disposal.	Containers of hazardous waste are stored in this unit before disposal off site.
Release History	No documented release history	No documented release history	No documented release history
Release Pathway	NA	NA	NA
Remedial Action Taken	None	None	None
Release Potential	Low	Low	Low
Potential Pathway	NA	NA	NA
Reason for Release Potential Rating	This unit stores nonhazardous waste and is protected from storm water runon and runoff.	This unit stores nonhazardous waste and is protected from storm water runon and runoff.	This unit is protected from storm water runon and runoff, and it is provided with secondary containment.
Need for RFI	No	No	No

TABLE 1

SWMU AND AOC SUMMARY

Sheet 5 of 10

Unit	SWMU No. 13	SWMU No. 14	SWMU No. 15
Unit Name	Nonhazardous Waste Storage Area	Salt Bin Storage Area	Chromate Waste Tank
Description	A 5,600-square-foot concrete slab with a 4-inch high berm	Two 20-cubic-foot rolloff boxes on a concrete slab	A 4,000-gallon carbon steel aboveground storage tank on a concrete slab
Operating Status	Active since May 1, 1985	Active since 1975	Active from January 1965 to early 1980s. Inactive and removed in early 1987.
Regulatory Status	Not regulated	Not regulated	RCRA-regulated
Waste Type	Miscellaneous nonhazardous waste that cannot be treated in the new wastewater treatment system	Sodium chloride salt contaminated with vinyl chloride and polyethylene amine	Chrome-bearing sludges and wash water containing heavy metals
Waste Management	Containers of nonhazardous waste are stored in this unit before disposal off site.	Waste salt is accumulated and stored in this unit before disposal off site.	Waste was accumulated in this tank before disposal off site.
Release History	No documented release history	No documented release history	No documented release history
Release Pathway	NA	NA	NA
Remedial Action Taken	None	None	None
Release Potential	Low	Low	Low
Potential Pathway	NA	NA	NA
Reason for Release Potential Rating	This unit stores nonhazardous waste, is protected from storm water runon and runoff, and is provided with secondary containment.	This unit stores nonhazardous waste and is protected from storm water runon and runoff.	The tank has been removed, and the area is protected from storm water runon and runoff.
Need for RFI	No	No	No

TABLE 1

SWMU AND AOC SUMMARY

Sheet 6 of 10

Unit	SWMU No. 16	SWMU No. 17	SWMU No. 18
Unit Name	Raw Material Bag Compactor	Former Wastewater Treatment Sump	500-Gallon Sump
Description	A 20-cubic-yard trash compactor	A 350-gallon concrete sump	A 500-gallon concrete sump
Operating Status	Active since January 1984	Inactive since 1990	Inactive since 1990
Regulatory Status	Not regulated	Not regulated	Not regulated
Waste Type	Empty raw material bags and burlap bags	Wastewater containing organics	Wastewater containing organics
Waste Management	Trash is compacted and stored in this unit until it is transported off site for disposal.	The wastewater collected by this unit was pumped to the former wastewater treatment system (SWMU No. 22).	The wastewater collected by this unit was pumped to the former wastewater treatment system (SWMU No. 22).
Release History	No documented release history	No documented release history	No documented release history
Release Pathway	NA	NA	NA
Remedial Action Taken	None	None	None
Release Potential	Low	Low	Low
Potential Pathway	NA	Soil and ground water	Soil and ground water
Reason for Release Potential Rating	This unit stores nonhazardous waste and is protected from storm water runon and runoff.	This unit has been removed.	This unit has been removed.
Need for RFI	No	No	No

TABLE 1

SWMU AND AOC SUMMARY

Sheet 7 of 10

Unit	SWMU No. 19	SWMU No. 20	SWMU No. 21
Unit Name	Parts-Cleaner Unit	Waste Oil Tank	Tote Tank Cleaning Tanks
Description	A sink that is mounted on a 30-gallon drum	A 300-gallon aboveground steel tank on a concrete slab	Two 10,000-gallon FRP aboveground tanks on a concrete slab
Operating Status	Active	Active	Active
Regulatory Status	Not regulated	Not regulated	RCRA-regulated
Waste Type	Safety-Kleen 105 solvent (mineral spirits)	Used crankcase oil	Wash water from the tote tank cleaning process
Waste Management	A Safety-Kleen representative inspects the unit monthly and replaces the used solvent with fresh solvent. Safety-Kleen recycles the used solvent.	Waste oil is accumulated in this tank before being transported to the incinerator waste transfer area.	Wash water from the tote tank cleaning process is accumulated in these tanks and then transferred to the new wastewater treatment system (SWMU No. 23).
Release History	No documented release history	No documented release history	No documented release history
Release Pathway	NA	NA	NA
Remedial Action Taken	None	None	None
Release Potential	Low	Low	Low
Potential Pathway	NA	NA	NA
Reason for Release Potential Rating	The parts-cleaner unit is only used in the truck maintenance shop, is provided with storm water runon and runoff protection, and secondary containment.	This unit is protected from storm water runon and runoff and is provided with secondary containment.	This unit is protected from storm water runon and runoff and is provided with secondary containment.
Need for RFI	No	No	No

TABLE 1

SWMU AND AOC SUMMARY

Sheet 8 of 10

Unit	SWMU No. 22	SWMU No. 23	SWMU No. 24
Unit Name	Former Wastewater Treatment System	New Wastewater Treatment System	Storm Water Basin
Description	This unit consisted of a sump, an oil skimmer, a 98,000-gallon tank, a 1,700-gallon tank, and a 6,000-gallon tank.	This unit consists of a sludge bin storage area, a filter press, an activated sludge unit, an unit area collection sump, and Tank S-131 located on a concrete slab with secondary containment.	This unit consists of a 157,000-gallon subsurface double-walled concrete basin with an oil skimmer and leak detection.
Operating Status	Inactive since 1990	Active since 1990	Active, rebuilt in 1990
Regulatory Status	Not regulated	Not regulated	Not regulated
Waste Type	Storm water and process wastewater containing organics	Storm water and process wastewater containing organics	Storm water containing organics
Waste Management	The wastewater received in this unit was treated to remove organics and then discharged to the local POTW.	The wastewater received in this unit is treated to remove organics and then discharged to the local POTW.	The free-floating oil in the waste received in this unit is removed by the oil skimmer. The oil is disposed of in the incinerator, and the water is pumped to the new wastewater treatment system.
Release History	No documented release history	No documented release history	No documented release history
Release Pathway	NA	NA	NA
Remedial Action Taken	None	None	None
Release Potential	Low	Low	Low
Potential Pathway	NA	NA	Soil and ground water
Reason for Release Potential Rating	This unit has been removed.	This unit is provided with storm water runon and runoff protection and secondary containment.	The sump is constructed belowground.
Need for RFI	No	No	No

TABLE 1

SWMU AND AOC SUMMARY

Sheet 9 of 10

Unit	SWMU No. 25	SWMU No. 26	AOC No. 1
Unit Name	Waste Pile	Former Burn Pit	Oxyalkylation Area
Description	In the late 1980s an indeterminate amount of waste was piled up near the location of the former wastewater treatment system (SWMU No. 22)	A pit of unknown size	A process area of the facility located on a concrete slab
Operating Status	Inactive	Inactive	Active from 1953 to 1990, inactive since mid-1990
Regulatory Status	Unknown	Unknown	Unknown
Waste Type	Unknown	Unknown	Unknown
Waste Management	An unknown volume of waste was placed in a pile in late 1980s and was removed in 1990 or 1991.	Waste material was burned in this area	This was a Nalco Sugarland process area from 1953 to 1990.
Release History	Unknown	Unknown	Soil and ground-water samples collected by Nalco indicate organic contamination of soil and ground water.
Release Pathway	NA	NA	Soil and ground water
Remedial Action Taken	Unknown	Unknown	None
Release Potential	Unknown	Unknown	Low
Potential Pathway	Soil and ground water	Soil and ground water	Soil and ground water
Reason for Release Potential Rating	NA	NA	Soil and ground-water samples indicate the presence of contamination.
Need for RFI	Yes	Yes	Yes

TABLE 1

SWMU AND AOC SUMMARY

Sheet 10 of 10

Unit	AOC No. 2	AOC No. 3
Unit Name	Alkylate Tank Farm Area	16 Upright Unloading Area
Description	A 45-by-80-foot concrete slab with a 40-inch-high concrete berm containing 10 tanks	A concrete slab west of the 16 upright tank area
Operating Status	Active	Active
Regulatory Status	Not regulated	Not regulated
Waste Type	Unknown	Unknown
Waste Management	Unknown	Unknown
Release History	Nalco discovered a leak from Tank 668 in late 1991.	No documented release history
Release Pathway	Soil	Soil
Remedial Action Taken	In late 1991, about 10 cubic yards of soil were removed from beneath this unit.	In 1987, about 40 cubic yards of soil were removed from this area.
Release Potential	Low to moderate	Low to moderate
Potential Pathway	Soil and ground water	Soil and ground water
Reason for Release Potential Rating	Contaminated soil has been found at this unit.	Contaminated soil has been found at this unit.
Need for RFI	Yes	Yes

REFERENCES

Nalco Chemical Company, 1986, Letter from Mr. C.W. Ham of Nalco Chemical Company to Mr. G.P. Hartmann of the Texas Water Commission regarding secondary containment construction at the Sugarland facility (September 17).

Sellards, E.H., and others, 1932, The Geology of Texas, Volume I, Stratigraphy. The University of Texas at Austin, Bureau of Economic Geology, ninth printing.

Texas Department of Water Resources, 1983, Records of Wells, Drillers' Logs, Water-Level Measurements, and Chemical Analyses of Ground Water in Brazoria, Fort Bend, and Waller Counties, Texas, 1975-79 , Report 277.

Texas Water Commission (TWC), 1989, Permit for Industrial Solid Waste Management Site (Part B Permit). TWC, Austin, Texas, Permit No. HW-50120-001.

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U.S. Environmental Protection Agency, 1986, RCRA Facility Guidance Document.

University of Texas, 1977. Hydrology of Gulf Coast Aquifers.

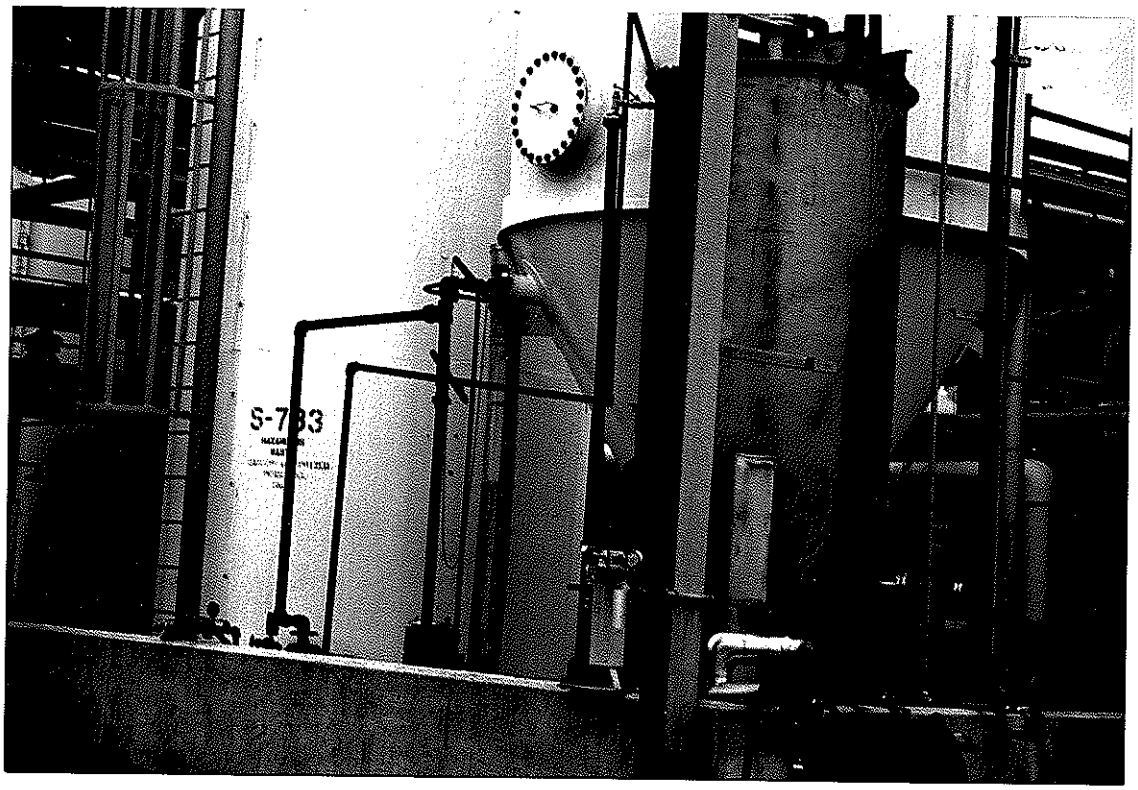
APPENDIX

VSI PHOTOGRAPHS

PHOTOGRAPH NO. 1

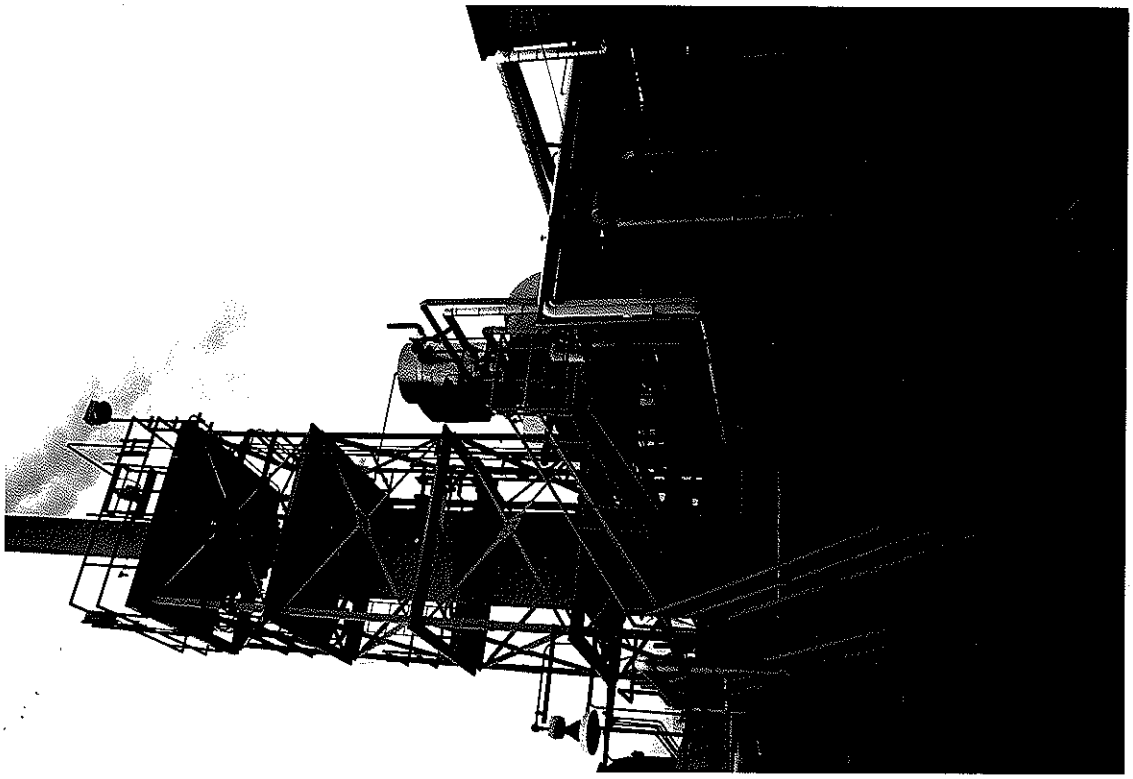
Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: East
Description: Incinerator waste transfer area (SWMU No. 1) and incinerator (SWMU No. 3)

PHOTOGRAPH NO. 2



Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: North-northeast
Description: Incinerator feed tanks (SWMU No. 2)

PHOTOGRAPH NO. 3



Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: North-northwest
Description: Incinerator (SWMU No. 3)

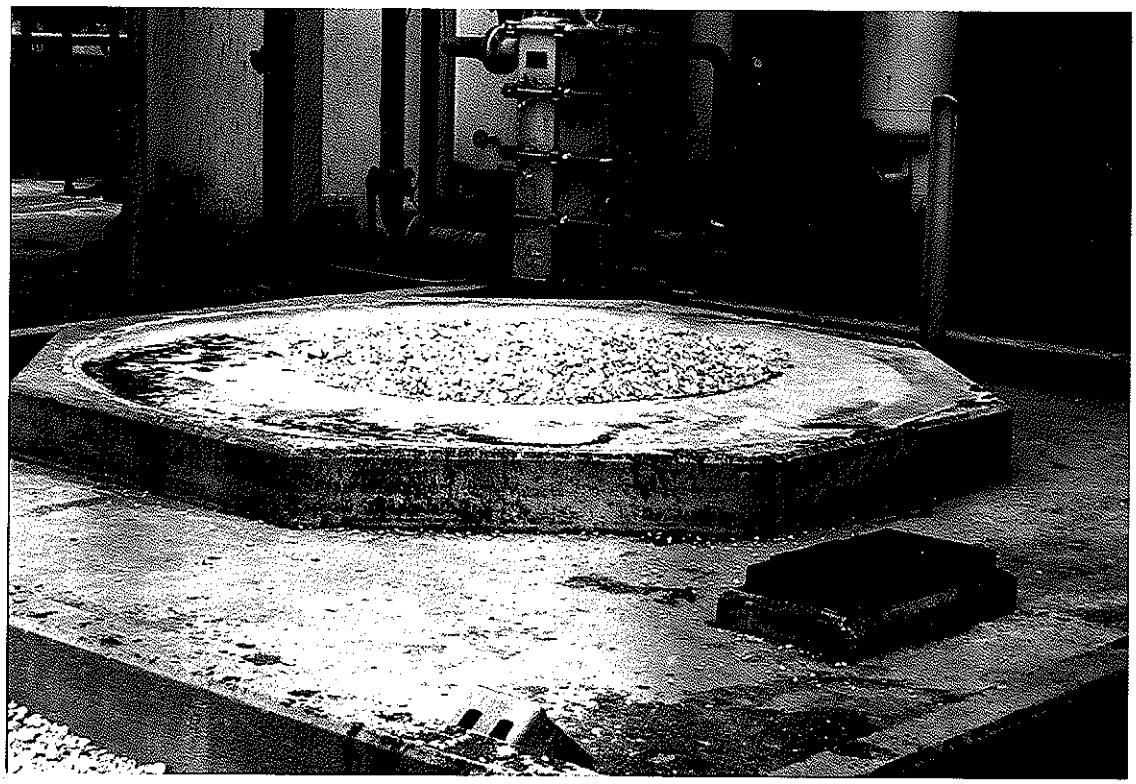
PHOTOGRAPH NO. 4

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: West
Description: Tank 701 and 703 transfer area (SWMU No. 4)

PHOTOGRAPH NO. 5

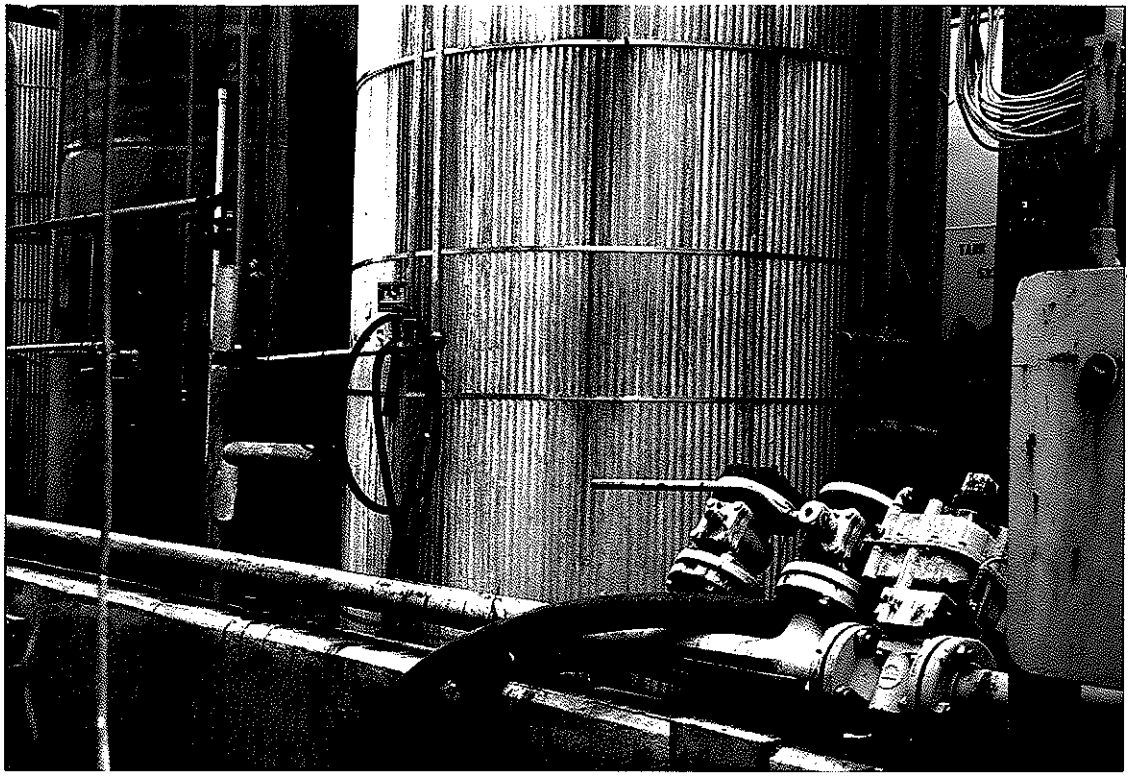
Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: West
Description: Tank 703 (SWMU No. 5) and Tank 701 (SWMU No. 6)

PHOTOGRAPH NO. 6



Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: East
Description: Location of Tank 703 from 1969 to 1986

PHOTOGRAPH NO. 7



Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: Southeast
Description: Tank S-700 (SWMU No. 7)

PHOTOGRAPH NO. 8

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: Southwest
Description: Research container storage area (SWMU No. 8) and laboratory waste storage tank area (SWMU No. 9)

PHOTOGRAPH NO. 9

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: North-northeast
Description: Research laboratory compactor (SWMU No. 10)

PHOTOGRAPH NO. 10

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: Southeast
Description: Bulk storage compactor (SWMU No. 11)

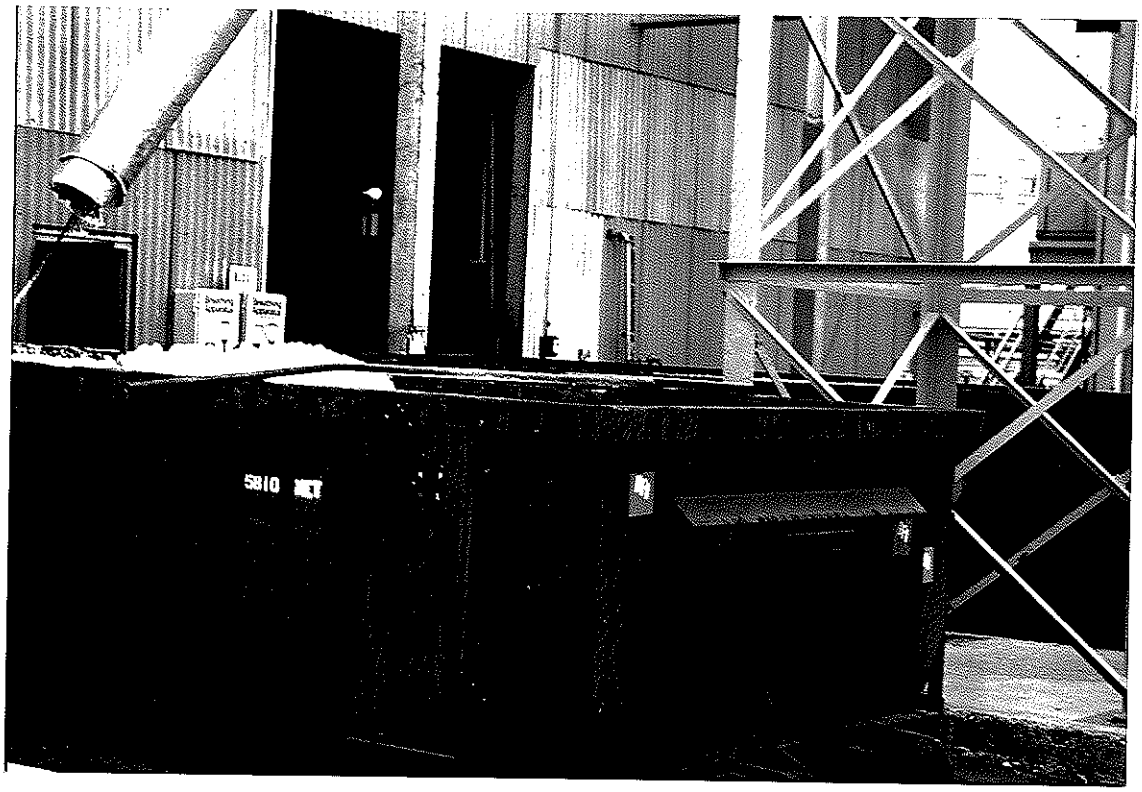
PHOTOGRAPH NO. 11

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: Southwest
Description: Hazardous waste drum storage area (SWMU No. 12)

PHOTOGRAPH NO. 12

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: South-Southwest
Description: Nonhazardous waste storage area (SWMU No. 13) and raw material bag compactor (SWMU No. 16)

PHOTOGRAPH NO. 13



Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: Southwest
Description: Salt bin storage area (SWMU No. 14)

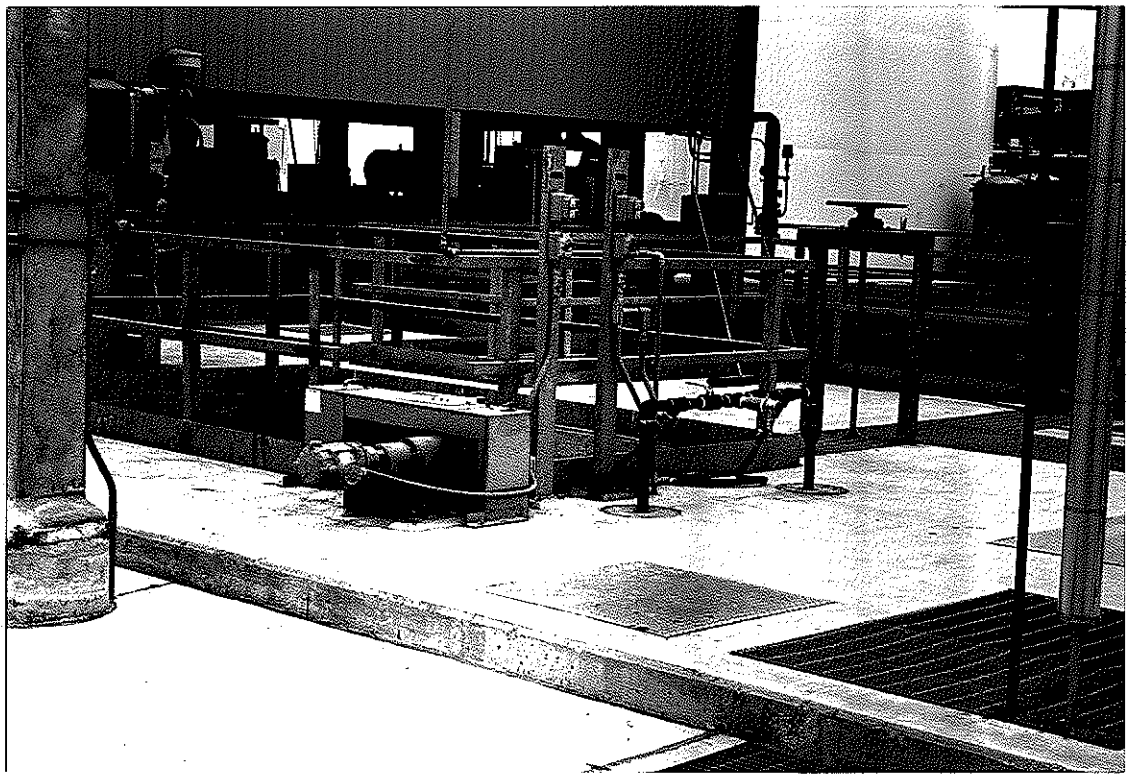
PHOTOGRAPH NO. 14

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: North
Description: Chromate waste tank (SWMU No. 15) location

PHOTOGRAPH NO. 15

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: West-southwest
Description: Former wastewater treatment sump (SWMU No. 17) location

PHOTOGRAPH NO. 16



Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: Northwest
Description: 500-gallon sump (SWMU No. 18) location and storm water basin (SWMU No. 24)

PHOTOGRAPH NO. 17

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: South-southeast
Description: Parts-cleaner unit (SWMU No. 19)

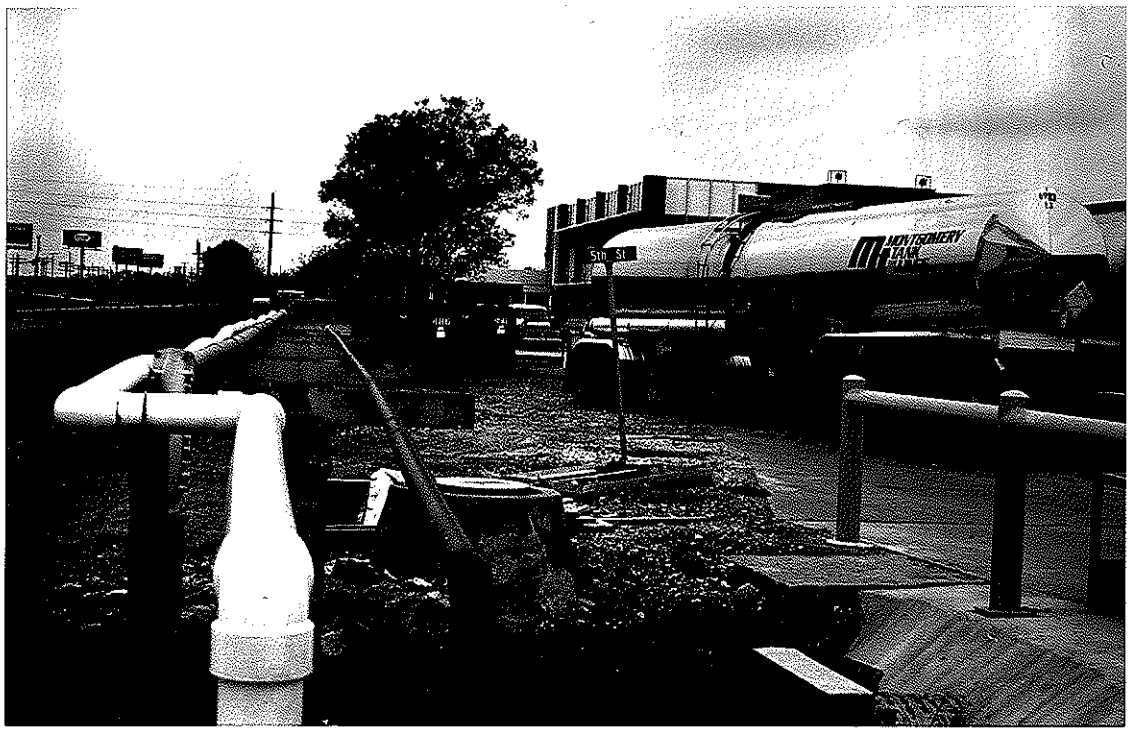
PHOTOGRAPH NO. 18

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: West
Description: Waste oil tank (SWMU No. 20)

PHOTOGRAPH NO. 19

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: Northeast
Description: Tote tank cleaning tanks (SWMU No. 21)

PHOTOGRAPH NO. 20



Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: West
Description: Former wastewater treatment system (SWMU No. 22) location and probable location of the waste pile (SWMU No. 25).

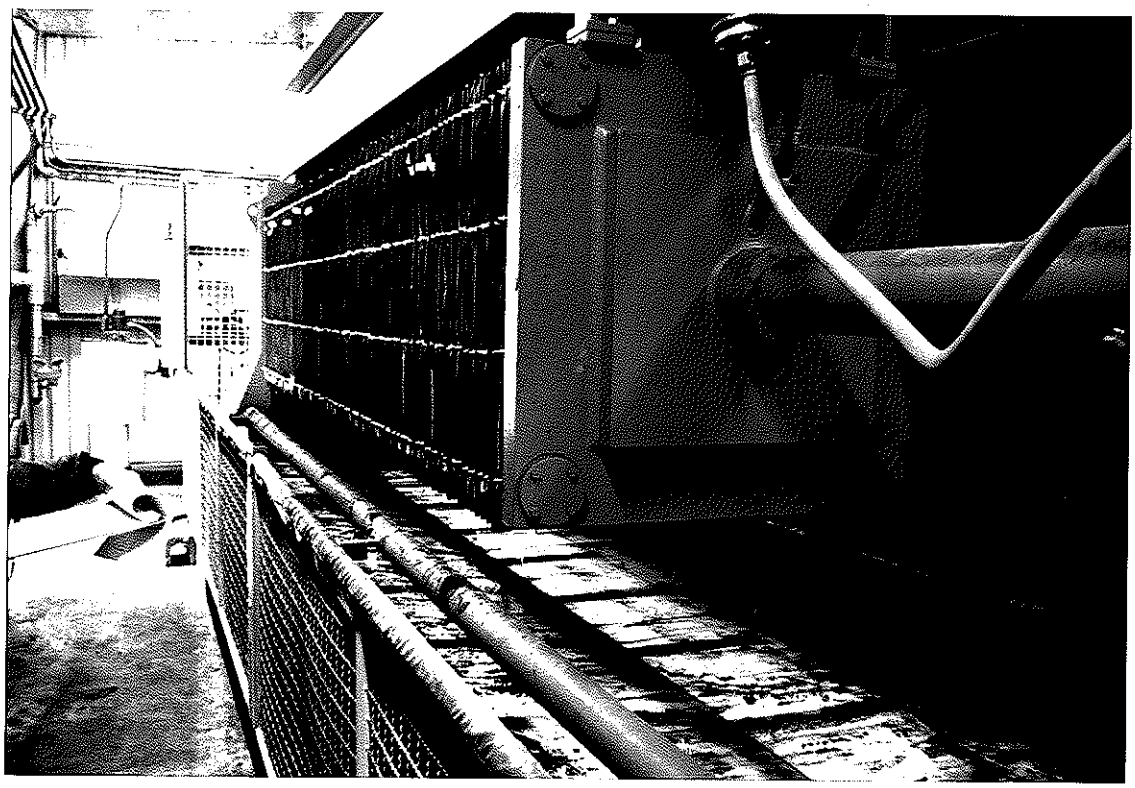
PHOTOGRAPH NO. 21

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: Northeast
Description: New wastewater treatment system (SWMU No. 23)

PHOTOGRAPH NO. 22

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: Northwest
Description: Sludge bin storage area (SWMU No. 23)

PHOTOGRAPH NO. 23

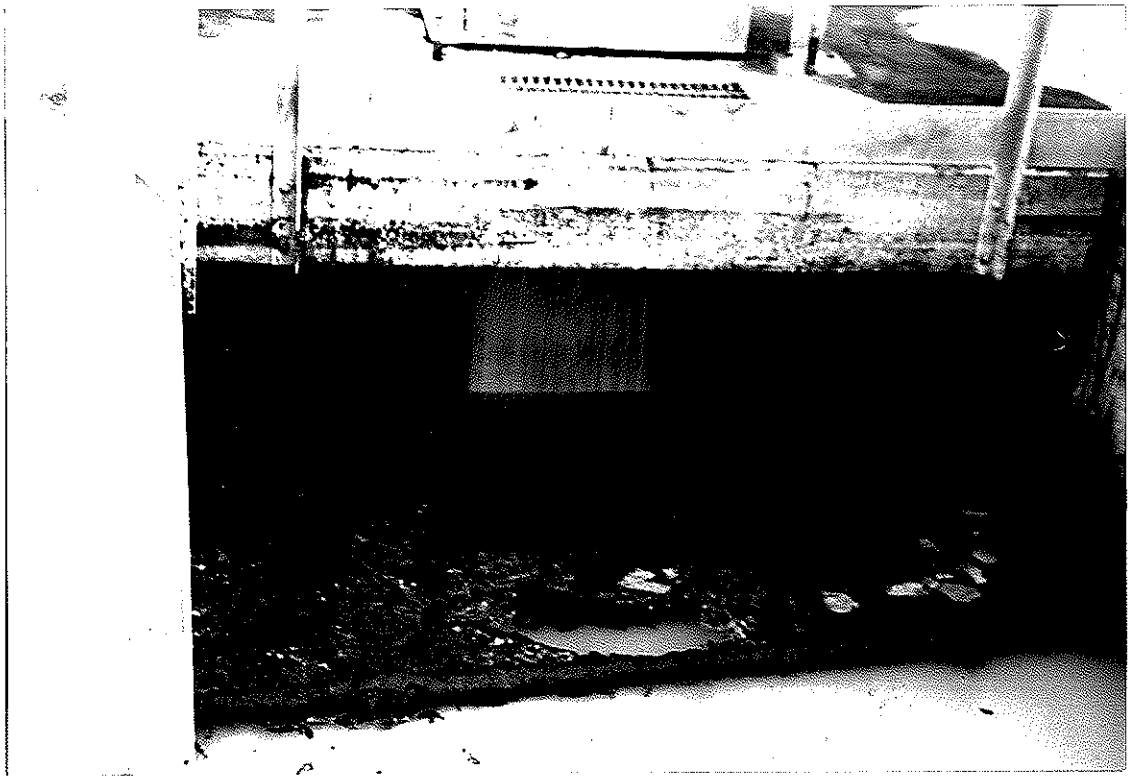


Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: Northeast
Description: Sludge filter press (SWMU No. 23)

PHOTOGRAPH NO. 24

Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: North-northeast
Description: Tank S-131 shown on the left and Tank 702 shown on the right

PHOTOGRAPH NO. 25

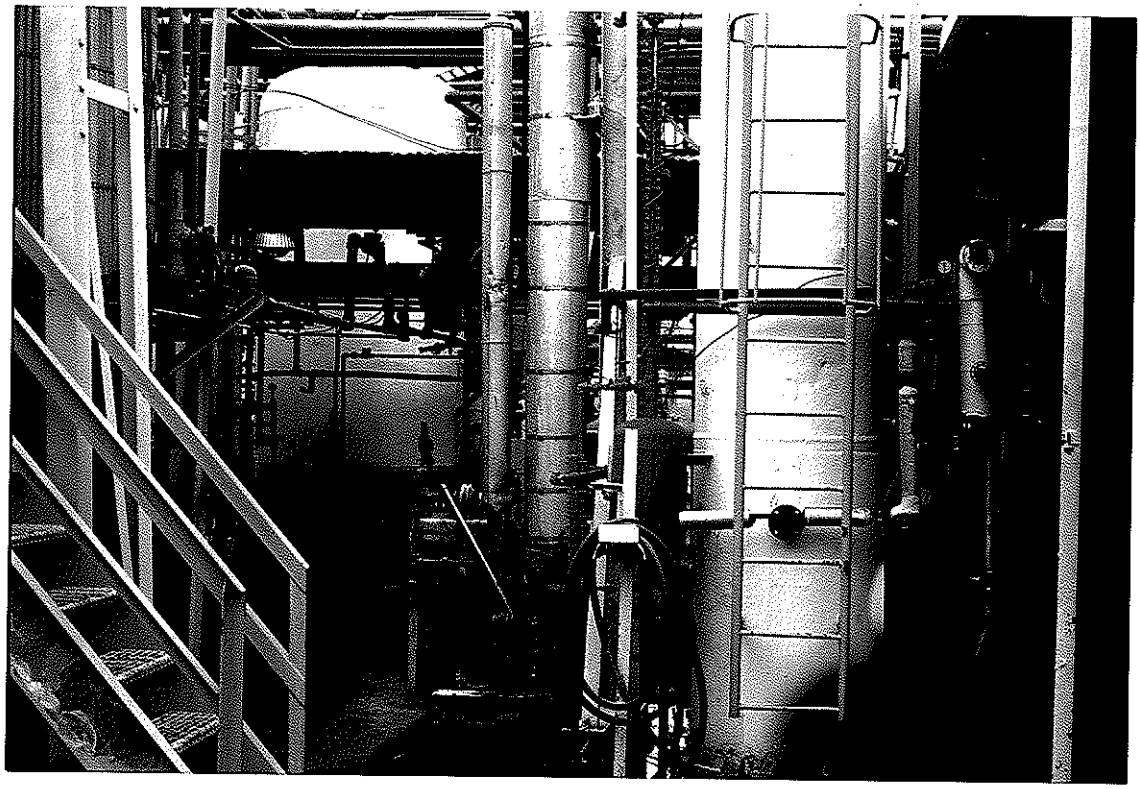


Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: Northwest
Description: Oil-skimming belt component of the storm water basin (SWMU No. 24)

PHOTOGRAPH NO. 26

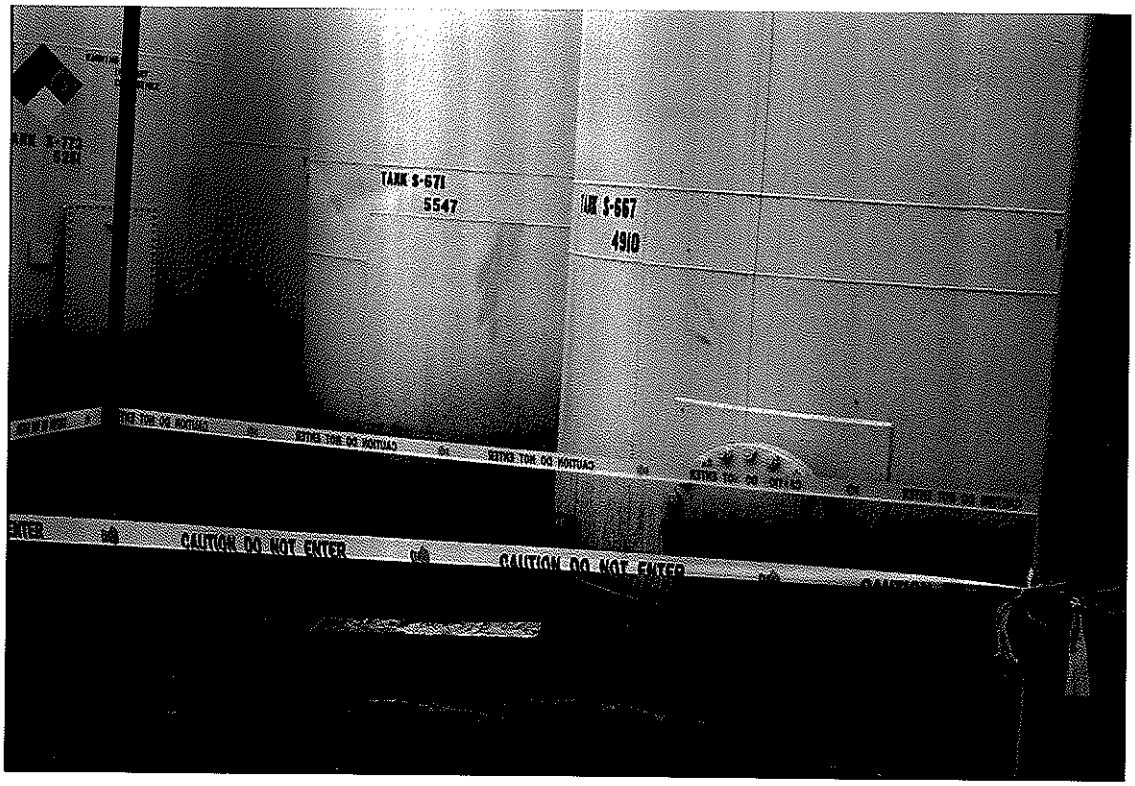
Date: 11-23-92 Picture Taken By: Bill Clemons Direction Facing: Northwest
Description: Former burn pit location (SWMU No. 26)

PHOTOGRAPH NO. 27



Date: 11-24-92 Picture Taken By: Bill Clemons Direction Facing: West
Description: Oxyalkylation area (AOC No. 1)

PHOTOGRAPH NO. 28



Date: 11-24-92 Picture Taken By: Bill Clemons Direction Facing: Northeast
Description: Alkylate tank farm area (AOC No. 2) and Tank 668 location

PHOTOGRAPH NO. 29

Date: 11-24-92 Picture Taken By: Bill Clemons Direction Facing: South
Description: 16 upright unloading area (AOC No. 3)